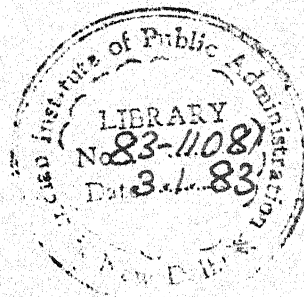


EMPLOYMENT PROBLEMS
of
BUILDING CONSTRUCTION LABOUR
in
KAVAL TOWNS OF U.P.
POLICY and ORGANISATION

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PROLOGUE

It were Professors W. Arthur Lewis and Ragner Nurkse who averred that "roads, viaducts, irrigation channels and buildings can be created by human labour, with hardly any capital to speak of". Later Professor Healey, in his work: "The Development of Social Overhead Capital in India - 1950-60" (Basil Blackwell, Oxford, 1965) observed that regional distribution, in India, of major construction projects, favoured those regions where unemployment was the lowest; recruitment, as might be expected, was more difficult in those regions because of fewer landless labourers and lower participation rates among women; mobility of skilled labour was considerably more limited than that of semi-skilled workers; and there was an inverse relationship between remoteness of projects and living conditions on the one hand and ease of recruitment on the other. Almost identically K.N.Raj, in his study on "Bhakra-Nangal Project", stated that 'Indian experience does not give unqualified support to the hypothesis of 'unlimited supplies of labour', if this means a continuously adequate flow of unskilled labour from the land projects at wage rates, prevailing in agriculture.' Also, it is generally seen that at sowing and harvesting times locally - recruited labour melts away. Whilst in theory this can be prevented by raising wages; in practice, the administrative machinery is not sufficiently flexible to cope with the requirements of the situation prevailing.

In quite many developed countries, the 'labour force employed in construction' is over 5 percent of the total work force. In the centrally planned countries, the proportion of labour force, in construction, is no less, rather the proportion has tended to move upwards - every year or every quinquennium. As an illustration, in the U.S.S.R., the rise of labour-force in the 'construction', during 1966-70 was 21.3 percent while for 'Industry' and 'Agriculture' by 6.3 percent and (-)0.8 percent. In contrast, in India (and also in Uttar Pradesh - the biggest State of India), the proportions of construction labour came down to about 2 percent - 1.2 percent, in the country, and 0.7 percent in U.P., in 1971.

In the background of the findings of Arthur Lewis, Ragner Nurkse, Healey, Raj (and also Colin Clark in his "Economics of Irrigation"), it was not late but timely and auspicious that the National Buildings Organisation (Ministry of Works, Housing, and Urban Development) thought of mounting a study on 'Construction Labour' and approached the Indian Institute of Public Administration, New Delhi requesting the latter to undertake a Research Study on: "Building Construction Labour in Kanpur City" (vide their D.O.No.5(125)/76-SE, dated February 8, 1977). Accordingly,

(b)

a detailed proposal was prepared, in the IIP and sent to the National Buildings Organisation on February 5, 1977. However, N.B.O. requested IIP (vide their letter March 11, 1977) to consider the possibility of having an overall view of the conditions of construction labour, covering whole of U.P. State. This proposal was weighted, and our view was spoken to them that confining the Study to five K.V.L towns will meet, in a large way, the wishes of the N.B.O. - and construction labour of U.P. will, in any case, form the backdrop of the study. Consequently, the Government sanction was issued (for grants-in-aid on March 22, 1977) - with a proviso that the funds may be utilised in about a year.

The preliminary work for the Study was commenced in April 1977 - thereafter the Questionnaire/Schedule was drafted - and the first progress report (for the period 22.3.1977 to 30.6.1977) was sent to the sponsoring Organisation - in which it was mentioned that the Schedule was prepared and the steps were being taken about canvassing the Schedule in K.V.L towns. The Survey was undertaken in K.V.L towns, during July-August-September; and Shri P.N.Chowdhari supervised the field operations. After checking and re-checking the Schedule, the 'tabulation programme' was prepared and the Schedules were sent to the Computer Centre, Planning Commission. However, it took quite some time to receive back Tabulation Hollerith Sheets from the Computer Centre - due to some bottlenecks that had developed at their end. However, the last instalment of the Hollerith sheets from Planning Commission were received some time at the end of January 1978.

On receiving all the Hollerith sheets, meaningful tables were prepared and report-writing was drafted by Dr. C.M.Palvia by the middle of April 1978. Stencilling and duplicating work was also quickly achieved simultaneously. Now it could be possible, after binding, to submit the Report to the sponsoring authority early in May 1978.

In India, studies done on 'Construction Labour' are few and far; Simla-based Labour Bureau of the Government of India, Study Group on Construction Labour of the National Labour Commission in 1966, and a few individual scholars/institutions have taken interest in this arena of construction man-power. Basically, the construction labour is the heart of all economic activities, because it is the construction works which are always the capital assets for economic and social welfare; they are long-life capital assets with low rate of depreciation; they serve a couple of human generations. Therefore, a study

'in-depth' about the labour force that participates in putting the infrastructure in the economy was in fact essential. The study of working and living conditions of the construction labour, the rise and fall in the volume of employment and unemployment of this segment of labour force is meaningful, because it acts and reacts, in a broad way, on the capital formation, employment, generating of essential and community services etc. and also meaningfully it impinges on other segments of the economy with forward and backward linkages of 'Multiplier' and 'Accelerator' phenomena.

Earlier, National Buildings Organisation had sponsored a study on "Building Labour" in Delhi to Shri Ram Centre for Industrial Relations - and now they revived interest on this subject for study in U.P. - the largest State of India - and covers the first five largest towns of U.P. - as the construction infra-structure in larger towns are sizeable. The fact that the National Buildings Organisation is alive on this subject, is highly gratifying.

In conducting the Survey work and in achieving related progress, in later months, ungrudging help and cooperation was always forthcoming from various organisations in Delhi (Director-General of Employment and Training, Kanpur, Agra, Varanasi, Allahabad and Lucknow. Shri Haldipur (Director of IIPA) was every time helpful in facilitating speed in various academic, personnel and administrative constraints, if any, and had always taken anxious interest in the progress of the Study. So also, the Director of N.B.O. (Shri G.C. Mathur), Joint Director (Shri B.N. Nair) and Deputy Directors (S/Shri S.N. Narang and K. Kumar) cheerfully offered various suggestions. In U.P. towns, where Survey was launched - the Chairmen of Town Development Authorities, and Commissioners of Municipal Corporations, Superintending/Executive Engineers of C.P.W.D., M.E.S., Railways, State P.W.D., Municipal Corporations, private contractors, were willingly participating in solving different questions, queries and problems raised to them.

Shri P.N. Chowdhari (Research Associate) and Shri P. Trimurthy (Statistical Investigator) were of great assistance in preparing statistical data. In particular, Shri Chowdhari also assisted, at some stages, in providing assistance in drafting of the Report.

Shri R.G. Malgund (Registrar), and Assistant Registrars (S/Shri S.K. Kohli, A.S. Nagar, and V. Ramkrishna) along with their staff were, every time willing, courteous and helpful.

(d)

Shri G.C.Tandon attended to typing and stenotyping work. It is in order to mention that Shri Sushil Kumar did neatly and intelligently the typing of the draft of the Report and later cut the stencils in a quick way - sometimes burning mid-night lamp.

(V.Jagannadham)
Project Director

P.S. The responsibility for the analysis done and views expressed in the Report is that of the Authors and not that of the various individuals/functionaries/organisations with whom we had the opportunity to consult and work.

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(i)
INTRODUCTION

0.01 Building industry is closely related with economic life and as such is associated with the cyclical behaviour; the cycles in building industry may be of short, intermediate and long durations and therefore all types of business cycles reflect their characteristics in building cycles also. Building cycles function both as 'causes' as well as 'effects' of variegated business cycles.

0.02 The industries which produce durable investment goods, have a sizeable influence on cyclical fluctuations in investment and also substantively on employment volume effected with the variations in building and business^{cycles} - since building, by itself, is the largest investment good industry. When consumer durables are added to the durable capital goods, the aggregate investment size at any point/period of time gets much more fattened.^{1/} Although (1) 'building construction volume' and 'employment volume in building construction' form only a part of (2) 'total construction' and 'total employment', the former group is conspicuous in demonstrating violent and volatile fluctuations in causing uptrends and downtrends in inducing 'investment' and 'employment' as also fastly divesting the 'investment' and 'employment' - and shockingly in the process has a resounding and sympathetic consequences in the other sectors of the economy - particularly in the arena of non-building construction.

1/ In the U.S.A. private construction declined to \$ 1.3 billions in 1933 (depression) from \$ 9.3 billions in 1925 (boom); and residential construction to \$0.4 billions, from \$5.2 billion - signifying declines by 86 percent and 92 percent respectively. This is a phenomenon of serious instability compared to declines in 'consumer outlay' which was at a level of \$42.3 billions in 1932 (depression) from \$93.3 billions in 1929 (boom-end period) - registering a fall of only 42 percent signifying more relative stability.

0.03 Constructions, other than building construction (such as, roads, streets, rail roads, tram-tracks, pavements, sewers, gas and electricity supply lines, telegraph and telephone lines, parks, etc.), induce sympathetic construction investments following construction of building construction; both the dechotominous constructions can be regarded as members of the family of 'joint-demand' - though the building investment forms a big share in the total construction investment. Consequently, any variations in the volume and value of building constructions germinate fluctuations in the broad field of construction field - resulting in violent fluctuations in the substantial amount of generation in the income and employment^{2/} in the construction sector. The instability in 'construction' has far-reaching effects on industries which are subservient to the construction (for the sale of their final products). For example, for every hour of employment on construction site in the USA, provides 'two-and-half hours' of employment in construction materials and equipment industries.^{3/} The foregoing ratio, does not include employment sprouted in real estate, and furniture and business equipment - though the employment multiplier in these activities is a consequence of volume of building activity; in addition, the

2/ In the USA, 85 percent of construction labour is employed in building industry.

3/ Herman B. Byer: Employment Resulting from Public Works Administration Construction (in the Monthly Labour Review Vol. 46, 1938 pp.16-26). The ratio, however, varied from 2.3 hours in water power projects to 4.4 hours in power and light plants. Also refer to an article by Keiche Inoue on: Labour Surplus to Labour Shortage Economy in Japan (International Labour Review, Vol. 113, No.2. April 1976 - page 217) in which the multiplier effects of fixed capital formation in 'buildings construction' in Japan, on employment is '2' and in 'engineering construction' 1.451 vis-a-vis 1.006 in 'fabricated metal products'; 1.11, in 'machinery', and 1.214, in 'electrical machinery, equipment and supplies'.

supply of various consumer goods and services induce employment and income to people engaged in them. The building industry displays the processes of (1) the stupendous size for income and employment, as also that of (2) generating widest fluctuations between the 'peaks' and 'troughs'.

0.04 The characteristics of the building industry and its cost structure elements can be briefly as follows:-

- (i) A complex of industries get integrated in the building industry; it helps in producing and using a variety of public utilities; at the same time, differences between one type of building with the others are wide and similarities are few (compare a large bungalow to a school or hospital buildings and again to a multi-storey-cum-flat buildings);
- (ii) The structure of the building industry is composed of a large number of speculative and small and big sized contract builders as also big public sector institutions (such as public workers departments at the States and central levels, Railways, Military, Engineering, Posts & Telegraphs, etc.) The edge of competition is rather sharper between the contractors in the residential building sector;
- (iii) The backward linkages with the material and equipment producing suppliers is prone with oligopolistic collusive and restrictive practices, also same situations might exist or develop, wherein monopolistic and price competition live side by side demonstrating dualism in market operations;
- (iv) Organised and unorganised building labour also co-exist with varying degree of unionization - ranging from weaker or no labour - unionism to powerful unionism; they respectively portray conditions operating in villages/small towns to metropolitan multi-million cities;
- (v) Working capital requirements are small in building industries because different stages of the operations involve different trade skills and highly different inputs which are outputs of different group of engineering skills (ranging from mechanical engineering to chemical engineering, electrical engineering, organic-chemical engineering etc.).

(iv)

Consequently, overhead costs of building industry are relatively small, but direct costs are not large as well as rigid - involving the payments for the purchase of materials and payment of wages. In spite of the increasing 'off-site' prefabrication technology producing ready-made residential or commercial buildings, a sizeable proportion of the building trades work input is traditionally done 'at site' - more so in respect of residential buildings;

(vi) Buildings are long-life durable assets which depreciate by 1-2 percent a year. Whether large or small sized the residential and non-residential buildings are highly costly in general in relation to the annual savings of the community or the household in their respective cases.

(vii) The sale of the residential and non-residential buildings are few and far - and largely these are sold on credit basis - where 'down payments' form a minor part to the total purchase price;

(viii) In big countries like India, (a sub-continental size), the local differences play their role, in regard to type and kind of building materials, climatic conditions, seasonality in building construction operations - including unemployment, excavation, depth of foundation, sewage, heating or air-conditioning, availability of basic materials like water, sand, stone, local building bye-laws, legal and architect's fees, zoning laws - and above all the usage, labour productivity in brick laying, carpentry, plastering, preparing of mosaic floors, walls and ceilings, wage payments etc.;

(ix) Buildings stand on land (often in cities on a developed land)^{5/} On the agricultural farm the value of land is almost negligible; again here the utilities supply problems are easily solved if the drainage is good and water can be obtained from a stream or river at a reasonable depth. However, it is not so in case of towns and cities - where land also begins to cost more and it is pushed up when as population density and industrial activity goes on upwards; resulting /costs of streets, sewers, water-supply and other utilities cost creating urban land more costly, complex, and intriguing. So, also the

/in

5/ Inputs of: preparation, surveying, cleaning, grading, filling, draining, planting, installation of sewers, water-supply lines, gas and electric lines, paved streets, curbs, community services (such as schooling, hospitals, community halls, parks, shopping centres, etc.) go to turn, raw land into developed land.

(v)

as
prices of land/well escalate and the cost of land plus buildings and services also inflate. Yet the land value is an abstruse and elusive phenomenon - in boom conditions land prices are raised and they decline during depressionary conditions - changing the cost ratio to the total cost of building.

- (x) It is not feasible/possible to change the nature and cost of improvements, as a tenet of public policy, according to purchasing power of the would-be occupants of the land areas as much as some of the other costs. To illustrate, the size and sewers' quality is regulated by the density of populations and not according to their income or purchasing power; so also the width and thickness of the streets, curbs and parks, etc. are to be built according to the volume of the traffic and not according to financial status of the would-be residents.

0.05 Inducement to invest in capital goods industry flows from the expectations which exceeds (or at least equal) the marginal costs of manufacturing them. Aforesaid ; factors underlying 'inducement to invest' are policy postures on monopolistic activities, population, wages, propensities to consume etc. which are funneled through (i) interest rate and resultant present worths; (ii) marginal cost of production; and (iii) expected value of use/consumption. However, the propensity to invest/^{sinks,} when the capital market value sinks below the marginal replacement costs. Nonetheless, the even flow of investment is dependent on the values of elasticities of 'demand' and 'supply'. More elastic demand for buildings severely dampens investment and vice-versa; and more elastic supply invigorates the supply and the vice-versa.

0.06 Supply or production of buildings(whether residential or non-residential buildings) is a highly industrial process. With the attributes of largeness, complexity, intricacy and variety. It eminently/basic platform of family's welfare and community's flag bearer. The 'privacy' along with

'togetherness', integrity of individual and family are properly nursed and protected by providing cooking, eating, living, sleeping and raising of children, quiet, mutual transfer of piety, consideration, affection in a residential building; no other industry can translate quite many ideals of man-kind and family as is done through residential building. In addition, a building has some fundamental qualities, such as, (1) Fixity and immobility (2) bulk and large size; (3) complexity and multiplicity of parts and variety of input-materials and equipment; (4) quite many types of buildings; (5) structural variety and methods; and (6) durability and long-life and slow rate of depreciation. A little explanations about these qualities are given below:-

(a) Fixity and Immobility

Notwithstanding the raising of residential and non-residential buildings - during wars^{6/}, calamities like earthquakes, eruption of volcanoes, famines and floods, uprooting of people due to political events causing refugees and inviting rehabilitation which are demountable with high flexibility of salvability - own fixity of location and high degree of immobility identified with a plot of land; and even the demountable houses at any point of time /a definite /have site in any case. This also obliges for a building to the local laws, taxes, character of occupancy; this phenomenon has been responsible for making building industry localised and also little more costly.

^{6/} Warren and Pearson say that not only did building, in a number of European cities (about 35 cities), decline to very low levels, in belligerent countries - such as England, Scotland, Canada and Germany; /it fell off /but equally heavily in neutral countries of Sweden, Netherlands, etc. (in their book "World Prices and Building Industry" - pp 119-31).

(b) Bulk and Large-size:

In case, it is desired to shift a building, the bulk, weight and largeness would inhibit its moving to other place - unless the building is made of light materials like timber and plastic or wooden planks and is put on wheels on all-weather roads. A building with four room and one-storey is estimated to weigh 45,000 Kilograms - containing about 25,000 Kilograms of masonry materials, 12,000 Kilograms of timber, lumber and wood, 6500 Kilograms of plaster, and metallic inputs of about 1500 Kilograms. In all this house weights equal to weight of 25-26 cars.

(c) Multiplicity of Parts, Variety and Complexity of materials and equipment:

The need for multiplicity of the functions^{2/} of a building makes it imperative to make building a complex product - though on the heterogeneity of designs, the architects have thrived and has unwisely discouraged the repetitive methods (which surely raise productivity of building labour) that in effect obstructed the era of reduction in costs. The mail-order business houses dealing in building materials sales transactions often stock about 19,000 items (excluding masonry, window frames to supply the needs of moderate residential and non-residential buildings. Actually, for a modern detached average size house, parts going in it are over 30,000 (excluding separate pieces of assembled parts, pieces cut into two on the job, loose items of nails and screws, and plastic materials); and in comparison it is simple and simplistic to build an automobile which has 50,000 parts and a military tank 17,000 (exclusive of rivets). The multiplicity, though puts consumer world at a disadvantage, somehow satisfies the art psychology of the building owner and the architects and fattens the profits of the manufacturers for the special products put in the market, but financially puts the builder and distributors at the end of jigsaw puzzle of not knowing the cost of 'diversity of items' (which are not duplicated). with the introduction of mechanical equipment (and mechanical water-heating, lighting, cooking and

2/ Functions are of: Kitchen, service, bedrooms, living rooms, library, entertainment room, garage, fuel corner, lavatory corner, store, etc.

8/ 'The Integrated House' - Architectural Forum - April 1937.
 (b) P.A. Slone and R. Herold Denton: Towards More Housing (Monograph No. 8 of the Temporary National Economic Committee, 1940.)

(viii)

refrigeration and sanitation facilities) has further created the battery of skilled tradesmen and specialists for further employment in building construction; yet, it is true that these gadgets have increased house-building costs.

(d) Different Structural Techniques & Systems:

Assembling of various components of building materials can be done in quite many ways and technologies; laying of bricks may be solid or/cavities and could /with be cross-tied and bonded in a variety of ingenuity - with veneers against cinder, wood, steel, tiles - with round, flat or balloon and braced designs including reinforced columns and beams with various steel and wooden proto-types along with generalised and particularised according to custom and local varieties. Light-weight and heavy weight structural designs according to suit climatic specialities in cold or hot areas, earthquake-proned and hurricane prone regions as also luxury bedecked system or functional utility culture.

(e) Residential Buildings with Various Individualistic Designs:

One-family residential buildings form about 50-65 percent of total residential buildings; two-family buildings, about 15 percent; multi-family buildings, about 8-10 percent; and non-family households buildings, about 10-12 percent. A diversity in forms, number of rooms, compact or extensiveness in the house, detached and duplex or multi-family apartment housing, density of population, a wide band of purchasing or rent paying capacities, conformity with a jungle of zoning and municipal bye-laws result into a hybrid combinations of assorted buildings both for residential purposes and non-residential needs or shopping, schooling, health care, entertainment, industries, offices, etc.

(f) Long 'Expectation of Life' of the Buildings:

In any time-span of the community, old buildings form about 80-90 percent and the rest are new buildings of the age of 'five or less years and are the infants'. Therefore, changes occur with wide-time-lag. Over time, also changes and improvements take place in arts, engineering, technology, changes in the type of building materials, produced though at slow and halting pace. For example, sudden and drastic innovations require time to be accepted in the fields of structures, architecture, sanitary wares or even the use of electricity for lighting or cooking, steel and concrete re-inforced construction or use of piles for foundation. So also perpetual to lease-holds in land market has been a tremendously slow operation. Even maintenance and

repair operations are complex and difficult as also costly and sometimes could be vulnerable. A large supply of parts in the distributive market invariably necessary but at the same time create hurdles in estimating demand or supply-levels resulting in highly deflated or inflated market prices.

0.07 Recovery in building cycle, from depressive states, comes through ^{the} rise in G.N.P. which raises autonomous demand. Nevertheless, big wars and technological progress stimulate demand as well as supply in same sectors of the economy and depress these in other sectors of the economy. The durability score a novel phenomenon in the 'building sector' whereby the building investments rise or fall is not dictated by the rise or fall in the 'cost of construction' - which seemingly does not control the volume of supply of buildings (and, therefore, induced investment in buildings). A given percentage change in building costs causes a less than proportional change in inducement to invest; and a decline in building costs of 50 percent would augment inducement to invest hardly more than 25 percent. So also interest rate can also be identified as an ineffective factor to induce or discourage investment in buildings; Schumpeter also felt that "there are situations in which zero interest would entirely fail to call forth any additional demand", and Pigou also said, that "but in times of deep depression, when industrialists see no hope anywhere, there may be no positive rate of money interest that will avail to get this money used"^{9/}. However, many monetary economists might argue 'in favour of interests' significance'

9/ Pigou^{iv}: Theory of Unemployment, p.213.

(x)

towards stabilising investment on the logic that manipulation of interest rates would be easier and neater than manipulation of 'cost of building' with all its technical, legal and human complications.

0.08 The demand is a function of cost of ownership of a building subsuming the 'price' and 'income' elasticities; and irrespective of the change in the cost of ownership, the GNP spent on 'all buildings' and its newly produced part on the value and volume of 'new buildings', are important issues. For 'all buildings', the function of cost of ownership will be around '1' but that for 'the cost of living in buildings' (or actual and imputed rent) is so much part of GNP that any appreciable variation in percent of GNP spent would cause violent fluctuations to spending, living and other habits; a change of 1 percent in the proportion of income spent on residential and non-residential buildings will heavily diminish consumer expenses for clothing education, health, etc. In comparison, due to elasticity of about '1' for cost of ownership, the variations in 'cost of ownership of buildings'^{10/} will not induce or resist aggregate expenditure in a violent fashion. It has been also found that the poor spend much higher percentages of their incomes on housing than do the rich strata.

^{10/} A reduction in cost of ownership by one percent would cause a decline of 0.2 to 0.4 percent in expenditure on housing - and the remainder of 0.6 to 0.8 percent would be used in adding to current living quarters (or in paying rent).

0.09 To identify differential effects of price and income elasticities over long-run and short-run time horizons, some observations will be meaningful. More intense is the supply (or production) elasticity, more restrictions or expansions will come through - following decline or incline in demand. Similarly, more intense is the demand elasticity, more restrictions and expansions will happen - following the decline or incline in production of buildings. Force ^{of} the spell of an excess investment to the planned or expected savings (during a period) may ensue into chain reactions of expenditure - and ultimately in accentuating the output of 'goods and services' as also multiplying real income. In the opposite direction, an investment lesser than the expected savings may cause a negative chain-reactions of reducing consumer expenditure - paralysing demand for 'goods and services' causing stoppage/suspension of output and thus making diminutive real income. This phenomenon is termed as "Investment Multiplier". Employment volume of construction/building labour is thus regulated, in one sense, by 'Multiplier' phenomenon. So also there is another more sharpened phenomenon operates in the construction/building sector - which is conspicuous in operation and is more prone in durable long-life goods' output - like in all constructions - including residential and non-residential sectors, and is termed 'Acceleration Principle' - which is explained in the paragraphs that follow.

0.10 The 'acceleration principle' operates much more forcefully in the housing-building-construction sector as compared to the manufacturing sector. This can be illustrated by a

hypothetical example. Suppose a country has 1,000 houses occupied by like number of households and no house is vacant. Further, it be assumed that replacement demand is 2 percent arising out of depreciation and obsolescence. Further, the number of households in the country remains steady, i.e. the increase in households is balanced by demise in households; in such circumstances, the normal replacement demand would be as well steady, year after year; and 20 new dwellings will be required each year. The economy and operations of the market phenomenon in the housing and building sector will exhibit the state of stabilisation. However, in one particular year,^{if} 30 new families move into the community either through immigration or additional family formation or break-up in joint families, the total demand for dwellings would increase from 1,000 to 1,050 ($1,000 + 30 + 20$) or by 5% in place of 2%.^{11/} But in effect, new dwellings required would increase from 20 to 50. Thus an increase of only 3% in the total demand for dwellings over the stable situation would result in dynamic increase by 150% (that is from 2 to 5) in the demand for new dwellings; and to that extent, investment will also have to be mobilised for constructing the houses in the community. The inflated demand for new houses cannot be maintained for all the time to come because additional new families would not always be increasing at that rate, and the

11/ Demand also increases when prices of houses decline and families seek better and more commodious dwellings. During a boom period, those who earn larger incomes, buy houses at favourable prices as credit terms become facile. During depression, as prices decline, the demand for lower-priced rental housing increases (ref. pages 32-33 of the UN document E/CN.11/ASTAT/HSP/L. 27 July, 1963 - by C.M.Palvia).

demand might again fall from 50 to 20 showing a decline by 60% in the demand for new dwellings from the changed situation.

0.10 From this illustration, it can be seen how a small change in over-all demand for housing is greatly magnified or contracted the demand for new investment volume in dwellings. This characteristic of the demand for housing is synonymous with the operation of the 'Acceleration Principle' applied to all types of fixed investments, and helps to explain the fact that the building industry is susceptible to 'fast' expanding or shrinking of durable capital goods supplies, consequent on slight changes in the total demand for residential buildings. However, for the low-income population of developing countries, demand factor is not relevant and it is really the supply that should be ensured - not somehow through free market forces but by some powerful exogenous agencies or fiscal measures. Such agency can be the State enjoined to construct subsidised houses at reasonably low costs ensuring larger supplies for low-income groups - incidently generating more of primary, secondary and tertiary income and employment, as also welfare with less of capital investment, for low income households - in the rich developed and poor developing countries alike.

0.11 In developing countries, house-building industry is largely labour-intensive and supply and demand for local skills and raw-materials can be meaningful important instruments for reducing construction cost and in inculcating operative efficiency in building construction. The process of economic and social development can be expanded rapidly even in urban areas by creating employment in building industry - which

often is first industry which benefits from the impact of the movement of manpower for employment from agricultural to the non-agricultural sector. The tangible benefits that flow from building activity with a little encouragement from the public sector in terms of domestic capital formation (or through international assistance); improvements can be achieved and would spur people to perform increased efforts, contributing ultimately to increased savings^{12/}, industrial development and economic progress.

0.12 In developed countries, particularly of Western Europe, depending on the distribution of incomes, interest rates and the cost of a dwelling, the proportion of those who cannot afford a new dwelling without public financial aid, account for as much as 90 percent of all earners^{13/}. In developing countries, because of a large proportion of population having low incomes, State should take initiative in providing public financial aid in a big way to enthuse house building activity, and should as well attempt to correct the inflationary pressures that might be generated following boom conditions in house-building industry by employing compensatory public works policy.^{14/} In developing countries, State's initiative can be doubly rewarding as it helps to remove

^{12/} 'People who would not otherwise make savings available for capital formation like to save for housing and, to this extent house building is a healthy lever for capital formation. In turn, it determines the level of certain other forms of investment such as public utilities, consumer durables in the form of fittings and furnishings etc. (United Nations Document E/CN/11/ASTAT/HSP/L.27, page 31, July, 1963 - by C.M. Palvia).

^{13/} UN: Financing of Housing in Europe, page 75 (Geneva, 1958).

^{14/} Refer: (1) Public Investment and full Employment 1946 (ILO); and (2) Public Works and Employment - by McKean and Taylor (Public Administration Services, Chicago, 1955, Chapter IX). (Refer also to Annex - 0.1).

not only chronic conditions of unemployment and under-employment but also injects elements of economic stability.

0.13 The public sector's role in augmenting and activating investment in the house building programme has been a central piece in the economic stability and development as well as social welfare policies in the post-war period of most of the developed countries. Statistics given in Table- 0.1 speak boldly about this aspect and can serve as illustrious guideline for developing countries; the proportion of new housing constructions with public financial aid have ranged in developed countries from 52 to 97 percent for the period around the first half of 1950's. In developing countries, presently, the residential and non-residential building activity is at a very low level notwithstanding their fast growing needs. Particularly, residential units which are being constructed every year per thousand of population in most of these countries is around 1 or 2 whereas in the developed countries this figure is about 5 or above and in the case of New Zealand 10; Hongkong 13, and the Soviet Union, 14.^{15/}

0.14 The role of public sector in providing residential units has been increasing and will be increasing faster in developing countries specially for low-income groups as the present base of public investment in these countries, in housing, is low. In the developed countries, about 90 percent of

15/ Annual Bulletin on Housing and Building Statistics - Economic Commission for Europe; and (2) Report of the UN Expert Group on Housing Management and Tenant Education; Chapter 1, para IV-b (March 1963, Wellington, New Zealand).

residential capital formation is accounted for by new dwelling construction and 10 per cent for additions and alterations^{16/} but in the developing countries, because of limited resources, there is urgency to spend more on additions and alterations to housing and particularly in the densely populated countries of the ESCAP region. Such a trend would perhaps raise the utility of the residential capital stock of the developing countries.

0.15 Further, as only a limited amount of essential community services exist in urban and rural areas of the developing countries^{17/} their provision will have to be accelerated. The investment ratios that the provision of essential service bears to total residential buildings cost would, therefore, become an important element.^{18/}

^{16/} Problems of Capital Formation: Concepts, Measurements and Controlling Factors, page 16, Vol.XIX, 1957 (Conference on National Income and Wealth).

^{17/} In India, "household facilities, such as, tap-water are largely unknown in rural areas; households depend mostly on ponds and tanks for drinking water. In urban areas nearly 47 per cent of the households do not have tap-water and 31 per cent depend on tanks and ponds. Built up latrines are almost non-existent in rural areas; in urban areas, 44 per cent of the households do not have these sanitary facilities for private use but have to share them with others. The position as regards bath-rooms is scarcely better either in rural or urban areas than what it is for 'built-up latrines,' it does remain most unsatisfactory (Palvia C.M.: Socio-Economic Aspects of Public Housing in India, page 2-U.N. Meeting of the Expert Group on Housing Management and Tenant Education-Wellington (NZ) March, 1963).

^{18/} * "It takes, on the average, an equal amount of investment in service facilities for each dwelling unit, as it costs to build the unit itself". (UN: Report of the Ad hoc Group of Experts on Housing and Urban Development, pages 34: March, 1962).

ANNEX. - C.1: Share of Public Sectors' Assistance for
New Housing in the Developed Countries -
and India.

<u>Country</u>	<u>%</u>
Australia	60-70
Belgium	53
Denmark	85
France	91
Ireland	97
Netherlands	95
Norway	66
Spain	66
Sweden	97
U.K.	68
W. Germany	52
India	20-25

Source: (i) Financing of Housing in Europe (U.N.); and
(ii) Plan data from five quinquennial plans of India.



I. PROBLEM OF BUILDING CONSTRUCTION LABOUR IN
KAVAL TOWNS OF U.P.

1.01 In India, according to 1971-Census, there are eight towns^{1/} with population of 'one million and more'; in order of population size, Kanpur is the eighth in the series. However, it is the largest and also the most-industrialised city of the State of Uttar Pradesh; in fact, prior to 1951 Kanpur was the largest and most industrialised town of North India - but it gave place of primacy to Delhi, in 1950's. Amongst the eight larger towns, the population of 'construction workers' to 'total workers', Kanpur metropolis recorded, in 1971, only 1.2 percent - being at the lowest amongst the eight larger towns. The other seven towns proportions of construction workers to total workers were: 2.1, percent, in Calcutta, 3 percent, in Bombay; 3.2 percent, in Ahmedabad; 4.5 percent, in Hyderabad; 4.8 percent, in Madras; 5.2 percent, in Bangalore; and 5.3 percent, in Delhi. The last five towns (from Hyderabad to Delhi), probably had relatively larger share of construction workers because of constructions required in face of rise in population^{2/} due to: being (i) industrial increasing locations and also because of their / (2) administrative capital cities of Andhra Pradesh, Tamil Nadu, Karnataka, and India. (See Table - 1.1).

1.02 So also, amongst the five larger towns of U.P. (that is, the KAVAl towns - Kanpur, Agra, Varanasi, Allahabad, and

1/ These eight towns, in order of population size are: Calcutta (7 million); Bombay (6 million); Delhi (4.1 million); Madras (2.5 million); Hyderabad (1.8 million); Ahmedabad (1.7 million); Bangalore (1.65 million); and Kanpur (1.28 million) - as recorded by 1971 - Census.

2/ The population increased during 1961-71 by 44.1 percent, in Hyderabad; by 37.36 percent, in Ahmedabad; by 43 percent, in Bangalore; and 30.73 percent, in Delhi.

TABLE - 1.01 Total Population, Total Workers, Total Construction Workers in the Million(s) Towns of India and seven larger Towns of the State of Uttar Pradesh - as in 1971.

Cities	Total Popula- tion.	Workers	%	Workers in Construction	%
1	2	3	4	5	6
Calcutta	7,031,382	2,286,147	32.5	48,805	2.1
Bombay	5,970,575	2,198,098	36.8	67,012	3.0
Delhi	4,066,000	1,228,000	30.2	65,000	5.3
Madras	2,469,449	696,379	28.2	33,487	4.8
Ahmedabad	1,741,522	496,938	28.5	15,778	3.2
Bangalore	1,653,779	487,920	29.5	25,609	5.2
Hyderabad	1,796,339	509,957	28.3	23,371	4.5
Kanpur	1,275,242	377,280	29.6	4,537	1.2
Agra	634,622	163,310	25.7	4,740	2.9
Varanasi	606,721	167,687	27.6	2,622	1.6
Allahabad	513,036	142,487	27.8	2,381	1.7
Lucknow	813,982	226,667	27.8	3,475	1.5
	4,093,303	1,077,431		13,248 17,755	
Meerut	367,754	105,147	28.6	2,453	2.3
Gorakhpur	240,158	63,037	26.2	830	1.3

Lucknow), the proportion of construction workers in Kanpur, stood at lowest rung of 1.2% as compared to 2.9 percent, in Agra; 1.6 percent, in Varanasi; 1.7 percent, in Allahabad; and 1.5 percent, in Lucknow. Even the next two towns - below the population of KAVAL towns - of Meerut and Gorakhpur - the construction workers' proportions to their total workers were - 2.3 and 1.3 percent respectively. (See Table 1.1)

The total population, according to 1971-Census, of the KAVAL towns is 4.093 million - of which 'total workers' are 1.077 million; and 'construction workers' are only ^{17,755} 13,218 - forming only a proportion of ^{1.7} ~~1.23~~ percent - which is nearer to the lowest proportion of the primate city of Kanpur.

1.02 Construction operations are a basic attribute of the development process and its dynamics - because these operations characterise in setting of long-life and heavy investment infrastructure - representing about two-thirds of fixed capital stock as well as that of current gross fixed capital formations. The quality and quantum of the infrastructures are in the forms of residential and non-residential buildings - and on the ground (or under the ground) structure like roads, bridges, tunnels, railway lines, parks, water-supply, sewage and sewerage, gas and electricity supply systems etc. These operations raise infrastructures at a point of time, are a function of 'on-site' and 'off-site' economic activity and volume of employment; they form 'king-pin' of the economic growth over space and time horizons and also determine the volume and value of other infra-structure constructions. More volume and value of the construction consummated, works as an indicator of positiv

housing and urban development of a particular area/city/state/country/region. It also portrays the volume of construction workers' employment, since labour input forms the crucial part of the completed structures, besides the input of building materials. It turns out to be a sad commentary on Kanpur that the share of construction workers in total workers, is only 1.2 percent - being lowest not only amongst million (+) towns of India but also amongst the seven larger towns of U.P. - (including the five KAVAI towns). There need be no surprise if the level of the infrastructure of essential and community services is very thin; and the quantum and quality is sub-standard of the residential estates; and 'overcrowding' and 'congestion' is high along with high average density of persons per dwelling and per room. So also it would equally be not perturbing if the male workers do not lead a family life^{2/} because their women folk and children are left behind in their home - villages.

: 1.03 Going at the state-levels, it is an irony to find that the construction workers' proportion to total workers, in the Uttar Pradesh is as low as 0.7 percent - which is bit better than Bihar and Orissa on the one end and also against new and small states of Tripura and Arunachal at 0.7 percent and 0.2 percent respectively. (See Table - 1.02).

^{2/} According to 1971-Census data, Kanpur was the most masculine city - with female/male ratio at the lowest of 762/1000 as compared to 834/1000 in Ahmedabad; 1875/1000, in Bangalore; and 927/1000, in Hyderabad - even though its population size is the lowest amongst the eight million(+) cities at 1.27 million; and its rate of population growth in the decennium 1961-71 was also lowest at 30.73 percent - as against 37.36 percent in Ahmedabad; 43 percent, in Bangalore; and 44.1 percent, in Hyderabad.

TABLE - 1.02: (1) Population, (2) Total Workers, (3) Construction Workers and the Proportion of Col.3 to Col. and of Col.(5) to Col.(3), in 1971, in India and the States.

States	Population (000)	Labour Force (000)	% of col. (3) to (2)	Workers in construc- tion (000)	% of col. (5) to (3)
INDIA	548,950	181,373	33.0	3,442	1.9
<u>States</u>					
Andhra Pra- desh	43,503	18,006	41.4	285	1.5
Assam	14,625	4,240	29.0	41	1.0
Bihar	56,353	17,489	31.0	98	0.6
Gujarat	26,697	8,396	31.4	120	1.4
Haryana	10,037	2,654	26.4	49	1.8
Himachal Pra- desh	3,460	1,279	37.0	51	3.0
Jammu & Kashmir	4,617	1,374	29.8	31	2.3
Karnataka	29,299	10,179	34.7	182	1.8
Kerala	21,347	6,216	29.1	107	1.7
Madhya Pra- desh	41,654	15,296	36.7	121	0.8
Maharashtra	50,412	18,390	36.5	276	1.5
Manipur	1,073	371	34.6	5	1.3
Meghalaya	1,012	447	44.2	4	0.9
Nagaland	516	262	50.8	3	1.2
Orissa	21,945	6,851	31.2	38	0.6
Punjab	13,551	3,913	28.9	77	2.0
Rajasthan	25,766	8,049	31.2	99	1.2
Tamil Nadu	41,199	14,742	35.8	234	1.6
Tripura	1,556	432	27.8	3	0.7
Uttar Pra- desh	88,341	27,334	30.9	166	0.7
West Bengal	44,312	12,369	27.9	124	1.0

Decline
in con-
struct-
ion Emp-
loyment
from 1961-
1971

1.04 The KAVAL towns' went through a silent agony of eloquently turning downwards the number and size of construction workers - both in absolute terms, as well as relative terms as a proportion of total workers. This violent transformation came along the back-drop of the increase in absolute terms in the number of total workers. Table - 1.03 presents data in regard to changes that occurred during the decennium - between 1961 - Census and 1971 - Census - which registered^a total decline in the size of the construction, from 1961 to 1971, of 9,856 workers (or by 35.2 percent) in KAVAL towns - as against an increase in total workers, by 14.8 percent. The decline in construction workers was precipitous in case of Lucknow, by 53 % - followed by 44 %, in Allahabad; by 43 %, in Kanpur^{3/}; by 30 %, in Varanasi; and 3 % increase in Agra. Further, the relative proportion of construction workers to total workers in Lucknow, came down from 3.5 percent to 1.5 percent; in Allahabad from 3.2 percent to 1.7 percent; in Kanpur, from 2.5 percent to 1.2 percent; in Varanasi, from 2.4 percent to 1.6 percent. (See Table - 1.03).

1.05 In brief, the slump in construction and building activity had a highly marked decline; nearly 35 percent were knocked down from construction labour market - rather than raising the employment volume in the construction sector - of

3/ It is however, true that even before 1951, the proportions of construction labour to total workers in Kanpur were at lower points (that is 0.591 in 1911 and 0.91% in 1931 of the total workers - whereas in Bombay and Ahmedabad at 2% approximate all the time). And the further relative fall of employment in activities like construction and transport, services had been proving disquieting and had been incessantly causing pauperisation of Kanpur City and its hinterlands.

which, serious brunt fell on the 'administrative capital' of Lucknow, and also the industrial capital (and primate city) Kanpur of the State of Uttar Pradesh. Next brunt/came down on the historical/religious cities of Agra, Allahabad and Varanasi. The threat to employment volume in the construction sector, not only reduced building activity, but must have had pernicious dislocations in the forward and backward linkages in employment in building materials industries (both indigenous and large scale), in the country, state and neighbouring districts of the KAVAI towns - and a menace to the economic activity in general and a set-back to tertiary sector, comprised of distributive trade, salary employment, and profession. Thus, these cities, have had been growing in demographic dimensions - surrounded by industrial stagnation, depressed and arrested or negative growth, and a prolonged halt or decline in construction activity - and therefore diminutive employment in construction.

1.06 The endogenous and exogenous potentials of Kanpur (and other KAVAI towns), in regard to industrial and urban growth (and for simultaneous development) have been thinly exploited. For an integrated development of the five cities and their spatial backward and forward resonances had inhibited and arrested sprouting and flowering. To counter the trend, expert multi-disciplinary growth-oriented action - programme is a 'must' - after assessing resource - origins and ultimate destinations' in market net-work system.

TABLE - 1.03 - No. of Total Workers and Construction workers and changes in their sizes and their proportions of construction workers to total workers from 1961-Census to 1971-Census in KAVAI Towns of Uttar Pradesh.

Towns	Number of workers			Workers in Construction			Percentage		
	1971	1961	Increase (+) Decrease (-) over 1961	1971	1961	Increase (+) Decrease (-)	1971	1961	Increase (+) Decrease (-)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Kanpur	377,280	316,581	+60,699 (17%)	4,537	8,004	- 3,467 (-4.3%)	1.2	2.5	- 1.3
Agra	163,310	138,505	+ 24,805 (17.7%)	4,740	4,612	+ 128 (+ 3 %)	2.9	3.3	- 0.4
Varanasi	167,687	156,578	+ 11,109 (8.3%)	2,622	3,717	- 1,095 (- 36.00)	1.6	2.4	- 0.8
Allahabad	142,487	131,180	+ 11,307 (8.4%)	2,381	4,269	- 1,888 (-44 %)	1.7	3.2	- 1.5
Lucknow	226,667	204,239	+ 22,428 (11 %)	3,475	7,297	- 3,822 (-53%)	1.5	3.5	- 2.0
Total	1,077,431	947,073	+ 130,358 (+14.0 %)	17,755	27,899	- 9,856 (-35.2 %)			

Note:- Figures within brackets under columns - (4) and (7) show percentage changes in total workers and construction workers from 1961 to 1971.

1.07 It is obvious that for about two-and-half decennia, the construction building activity was at a low ebb and the 'shortages of supplies' got heaped up. It is therefore urgent that the 'backlog of shortages' is bridged by urgently mounting a time-bound programme, as a crash operation. This thrust will call for developing sizeable expansion, not only of the production of building materials, but simultaneously to take a land development operation and also to create training capacity for generating building skills' labour capacity and technology to boost a supply of few millions of man-year manpower, to be employed, for achieving the targets for construction activity. The proportion of the 'construction workers' to 'total workers' shall have to be raised to 2.5 - 3.0 percent, from about 1.2 - 1.5 percent (or lower proportions) slumped - situations, in 1971 (or at present) ^{dwindling from} / 2.6 percent in earlier decade. Proper man-power planning which rests on scientific assessment, is inevitable because construction industry is one of the nations' (or the State and larger towns) crucial activity - sector - which forms the pivot for the welfare of the workers in general and construction workers in particular (and other sectors of economic activity) as also ^{for} the entire economy.

1.08 It is, however, true that ^a large number of the workers in construction sector are not employed year round; for example, many are employed during the peak building season; but a depressed employment in lean season (say, rainy season, or heat stroke period, in summer, or low temperature season in winter). So also when public and private construction volumes of residential, non-residential and other constructions boost

more building labour is in demand; simultaneously, the employment on 'maintenance and repairs' and 'additions and alterations' moves on the increase - with the change in income levels and higher elasticity of demand for 'housing services' and changes in tastes. Non-residential construction in an economy (in the public and private sectors) is around 60 percent - and could be 70 percent in developing countries - whereas the residential constructions range around 40 percent (or more) in developed countries; and 30 percent (or less) in developing countries.^{4/} Nevertheless in general, the public sector constructions, like highways, airports, harbours, sewerage and sewage, water-supply, transit facilities, rail-lines, office, hospital, school, industrial, business and commerce, entertainment buildings etc. have a relatively higher growth ^{catalysing} power for social and economic growth; the increase in population by natural, migration etc. also create raising of housing units (single-family, multi-family, and these vertical tenements) both by the public and private sectors - ^{and these} also have similar growth potentials.

1.09 Actually, 'one' out of 'four' (or 20-25 percent) or more^{5/} of skilled workers belong to construction sector in any economy (with similar ratios in and durable goods industry). Different construction building trades have varied demands for different composition of building profiles; for example, more civil and highway engineering skills are needed in road/bridge constructions than in building family houses/apartments. More carpenters

^{4/} See Statistical Annex - 1.01

^{5/} See Statistical Annex 1.02

are needed in timber housing than in masonry houses; more painters and white-washers are required in 'maintenance and repair' operations than in new housing; and in pre-fabricated house (where a large part of the components are prepared 'off-site' in factories), perhaps, relatively more demand comes for carpenters, electricians, etc. Often (but not always), residential building trades' craftsmen do not shrink too much nor do they expand with quirks - except when demographic picture radically changes - but a dissimilar situation may be in case of 'non-housing construction' (such as non-residential buildings, essential and community services).

1.10 An analogous depressing situation had developed in the U.S. economy, during 1960-70, when the perspective target fixed of 4.6 million man-years' employment in construction and which could be only to a level of only 3.3 million man-years - registered a short-fall of 1.3 million man-years in the construction sector. In effect, the targetted annual rate growth was 1.5 percent for construction employment for 1960-70, but it dwindled to 1 percent only for the period 1965-70. The longer time-canvas backdrop was that between 1950-67, the proportion of construction workers, the 'reported workers on work' to the 'actually receiving wages' fell to 53-55 percent - building a massive backlog also in employment and needed volume of construction in residential, non-residential buildings and other non-building construction. This sagging construction activity impelled to launch a policy action in 1970-71 to augment construction employment target to 8.5 million man-years by 1980: (1) to satisfy growing needs as declared in the Housing Act of 1949 and Housing and Urban Development Act of 1968; and (2) to adjust the new trends that were developing in shrinking the sizes of the households. To achieve the target of annual raise

by 3.2 percent per year, as stated above and thereby to raise the 1980 employment target to 8.5 million - for achieving the ^{earlier} construction output, originally fixed for 1980 - which took into account the adjustments for new trends that developed in the demographic composition and behaviour. The new trends were: (i) low level of new housing construction; (ii) high demolition rates of old buildings; (iii) lower vacancy ratio in housing stock than the normal vacancy ratio; (iv) the fall in the size of average household size - thereby increasing the total number of households - and therefore more needs for dwelling units^{6/} and (v) Retirement/superannuation and death also add to the requirements of man-power.

1.11 Annual average additional growth/demand for construction craftsmen, in USA, was projected ^{at} 91,000 during 1970-80; and this projection is higher than the 1960-70 average; for example, the additional average demand every year, during 1970-80 would have been 30,500 of carpenters - as against half of this figure - additionally, a year, during 1960-70. Non-residential constructions' increased demand volume, for construction labour will be more for structural metal workers ^{and} machinery operators for excavating and grading. Besides the increase in the demand of skilled tradesmen and craftsmen each year, the additional demand for the labour is likely to be 110,000 during 1970-80. Thus it makes, an increase

6/ In effect, between 1960-69, the number of households grew by a million a year; and it is expected that for 1969-80 period, the number of households will grow by 1.4 million a year. The 1968 - Housing and Urban Development Act, had set forth the USA's potential housing goal of 26 million new and rehabilitated units - over 10-year period (1970-80) - including 6 million for low and moderate income families/households at a cost of US \$ 50.1 Billion.

in man-year employment, each year, during 1970-80 will be 201,000. However, it is important to note that in U.S.A., the labour contractors do employ, on regular basis, about one-sixth of construction labour - as the hard-core of construction operations.

1.12 The above citation of the U.S. experience, at national level, is presented, to explain that not only developing countries but also the developed countries are confronted with the volatile nature of construction activity with 'crests' and 'troughs' in construction employment. This emphasizes the need to make proper institutional system for training - both formal and informal - of the craftsmen and labour in the construction sector; and in this case, it is significant to observe that about five years' intense experience as apprentice is necessary to produce a trained 'journeyman' (or master technician in the building trades). Nonetheless, it is evident that training in construction crafts is highly responsive to 'building cycles' and 'business cycles'; only once, in post Second War period, for 5 consecutive years (1962-66), construction employment expanded; and therefore, making of effective utilisation of 'training - with potentiality for productivity' ^{is essential} to ward off or blunt the edge of 'seasonality' and 'intermittancy' in construction employment.

Construc-
tion Tech-
nology
differenc-
es in
various
construc-
tions

1.13 Construction industry in the larger towns of India is characterised partly with high technology in case of big-sized buildings or bridges, and vertical buildings. But a large volume of operations exist at low-technology - involving small sized residential units in own-constructions by the individual

owner builders employing semi-skilled and unskilled labour; such builders belong to low-income households (who may represent 70 percent of the total households). Middle-income and high-income households use intermediate technology - with no power-power-cranes, but with simple hand-operated concrete-mixers employing a mix of skilled, semi-skilled and un-skilled labour. Government laws (except for the municipal bye-laws) do not very much affect the volume of buildings - but for the Rent Control Act which affects adversely the 'maintenance and repairs' investment and employment, but 'new buildings' (because of 5-years' holiday for the application of Rent Act) are not very much affected adversely in the supply of units in housing market.

1.14 Labour in general being unemployed or under-employed - particularly in case of migrants and unskilled later, makes it cheap to employ surreptitiously-flouting the Minimum Wages Act. But it does not follow what is cheap is not costly to the owner/builders.. But wage-rates, in case of public sector construction agencies, are generally adhered to the Minimum Wages Act; and it also ensures better labour productivity of the employees on temporary or piece-rate wages or daily wages.

S U M M A R Y

The volume of construction labour in U.P., and in its larger towns particularly for about two-and-half decennia has been declining at an accelerated rate - as compared to other States/larger towns of India; the main factor is the incessant static or falling rate in building activity almost everywhere in the biggest State of India. The decline in construction labour force, in the five KAVAL towns, between 1961-1971, surprisingly dwindled by 35.2 percent (of which the proportion decline in Lucknow was by 50%, in Allahabad, 44%, and in Kanpur, by 43%).

Lack of integrated over-all development planning is the over-all factor for the depressed conditions in the KAVAL towns in particular; here it is important that 'development planning' in the cities is not to be restricted in 'physical planning' - but it should form an important part only of the wider "Social and Economic Planning".

An analogy of the U.S.A. is cited - as it is very much similar to the conditions created about 'construction labour' in the decade 1960-1970 in KAVAL towns in the same time-span.

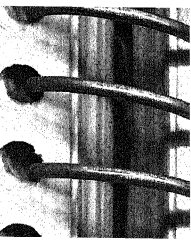
ANNEX 1.01^s - In GCFC and Proportions of G.C.F.C. to G.D.P. and Proportions construction Capital Formation Residential Buildings in Non-residential Buildings, and Non-Building Construction capital formations.

1	2	3	4	5	6
Country	Proportion of G.C.F.C. to G.D.P.	Proportion of construction capital formation to G.C.F.C.	Proportion of residential capital formation to G.C.F.C.	Proportion of non-residential buildings capital formation to G.C.F.C.	Proportion of non-building construction as a proportion of G.C.F.C.
Denmark (173)	23.4	60.9	48.7	33.5	17
Finland (1974)	28.1	63.7	41.5	34.6	32.1
France (1973)	25.9	55.7	35.0	48.0	17.0
Greece (1973)	27.7	57.8	48.3	18.9	33.3
Ireland (1970)	21.6	50.6	33.8	36.6	29.6
Italy (1973)	23.3	56.3	52.2	33.4	14.4
Netherlands (1973)	23.9	58.4	46.3	34.1	9.6
Norway (1973)	30.1	58.2	30.4	30.3	39.3
Spain (1970)	21.3	51.6	33.7	25.1	41.2
U.K. (1974)	20.3	53.7	37.0	n.a.	n.a.
U.S.A. (1973)	18.2	58.3	40.5	32.1	27.4

Source: Annual Bulletin of Housing and Building Statistic for Europe, Table-2 1974 (U.N. Economic COMMISSION for Europe).

ANNEX - 1.02 Ratios of Working Force in Construction to
Working Force employed in Manufacturing.

<u>0.2 and 0.3</u>		<u>0.3 to 0.5</u>		<u>Above 0.5</u>	
1. Belgium	0.2	1. Denmark	0.31	1. Algeria	0.85
2. Italy	0.2	2. Ireland	0.33	2. Tunisia	1.1
3. U.K.	0.2	3. Newzealand	0.34	3. Kenya	1.2
4. Austria	0.2	4. Germany	0.36	4. French	
5. Switzerland	0.2	5. U.S.A.	0.42	West	
6. Norway	0.2	6. Czechoslo-		Africa	2.1
7. Netherlands	0.2	vakia	0.42		
8. Yugoslavia	0.3	7. Brazil	0.45		
9. Finland	0.3				
10. Sweden	0.3				
11. Canada	0.3				



II. SAMPLE DESIGN - AND BROAD STRUCTURE OF DISTRIBUTION OF SAMPLE BETWEEN CONSTRUCTION AGENCIES, TOWNS AND TYPES OF SAMPLE BUILDING SITES:

2.01 The working population, in India, is around one-third of the total population. Broadly the proportion of the 'construction labour' to the working population, is rather low - ranging from 1 percent to 4.5 percent in different countries; it is just 1.9 percent in India, according to 1971-Census (as amplified in Chapter - I.) But, the proportion of construction labour ^{in J.P.} is 0.7 percent - which is disconcerting; though situation in larger urban areas is less disconcerting, due to little more building and construction activity - if not in relation to population size, but in absolute size. It is difficult to draw a conceptually demarcating line between 'building labour' and 'construction labour', they intermingle from one to the other - though higher proportion of technicians ^{prevails} in construction etc. of roads, bridges, sea-ports, air-ports/than in case of residential and non-residential buildings construction. The proportions, however, of unskilled labour do not show any marked differences between building and the construction operations. Therefore, this study has taken the aggregate view of the construction labour rather than confining to labour engaged in constructing buildings only.

2.02 It is also evident that the volume as well as the frequency of building activity - comprised of residential and non-residential^{1/} buildings - is more at any point of time. Also

1/ See Statistical Annex - 2.1 and 2.2

the non-building construction may not always ^{be} in operation, round the year; it is not so regular - as it can be in the buildings' sector. Relying on the greater volume and value of the buildings construction as well as its regularity and intensity, the sample was limited to canvass the schedules to the labour (both skilled and unskilled building labour), at work. 'on-site' of on-going construction, in all the five KAVAI towns.

2.03 The absolute limit to the canvassing was fixed at around 700 respondents, to our Schedule, in all the five towns; and actual numbers of the building labour, as respondents, town-wise fixed were: 200, in Kanpur City; and 125 each, in Agra, Varanasi, Allahabad and Lucknow. But the proportional shares of the respondents to the universe of the individual towns did not fully correspond to the proportions of construction labour of all the five KAVAI towns. What motivated, to assign more weight to Kanpur in fixing the respondent, relates to the following factors:- (i) the importance of Kanpur as the 'primate city' as well as the 'industrial capital' of Uttar Pradesh; (ii) the **initiation** of town and regional planning in the Second Plan (1956-61) - along with ^{country's} other metropolitan towns; (iii) setting of the Improvement Trust Board, in Kanpur as early as 1919; and Kanpur Development Board, in 1945; (iv) establishment of the Kanpur Development Authority to formulate and implement integrated 6-year, and Perspective Development Plans - were the precursor for setting up Development Authorities in Agra, Varanasi, Allahabad and Lucknow; and (iv) built-in lack-lustre in spatial and land use planning of in Kanpur vis-a-vis the Governments' attention in metropolitan cities of Delhi, Calcutta,

Bombay, Madras, Hyderabad, Ahmedabad and Bangalore - and also in relation to less larger towns of Poona, Jaipur, Chandigarh, Bhuv neshwar, Bhopal etc

2.04 In consequence, Kanpur accumulated the maladies of wasteful use of land, congestion, overcrowding in dwellings and rooms, poor environmental hygiene, insanitation etc. Manufacturing industries' growth, in 1950's and 1960's was not only arrested - but slumped and caused mounting up in unemployment - though in other towns of U.P. there was no decline, by and large. If there was no decline there was no progress either - constancy and static conditions, however, prevailed. During 1950's and 1960's, rising trend in economic activity relapsed, in Kanpur City and its hinterlands; - and construction, transport, electricity generation activities sagged more, and perhaps ^{also} earlier than the slipping down in economic and industrial activity.

2.05 The actual number of the respondents, as canvassed, turned out slightly different than originally fixed - being 703; 202, in Kanpur; 126, in Agra; and 125 each in Varanasi, Allahabad and Lucknow. Nonetheless, statistically, the size of the sample remained 'at about 700'. In 1971, total construction labour, in five KAVAI towns, was 18,055 - making a sample size of about 4 percent of the universe.

2.06 While canvassing the Schedule, the 193 construction sites were, of the Central Construction Agencies; 33 on C.P.W.D. sites; 67, on Railways sites; and 93, on MES (Military Engineering Services) sites. The State/Local Authorities' sites were 336 : 133, on State P.W.D. sites; 138 on Kanpur Mahapalika sites, and 65, on Kanpur Development Authority's sites. And the private builders/contractors' sites

located, were 174. Thus, the coverage related to 703 sites; and at all of these sites, one labourer was deciphered as a respondent - whether he was skilled, unskilled or semi-skilled - in any of the building trades. However, care was taken to choose the respondents - bearing in mind that distribution is not skewed vis-a-vis the proportionalities of labour inputs' shares in major building trades - of mason, carpenter, plumber, electrician, painter, etc. as also unskilled.

2.07 Again, it is important to observe that out of 202 sample sites in Kanpur (where construction work was in progress), Central construction agencies were handling at 130 sites (or 67.3 %); state/local agencies, at 20 sites (or 9.9 %); and private builders/contractors, at 52 sites (or 25.7 %). In Agra, the construction work of Central construction agencies was 'nil', state/local agencies, at 95 sites (or 75.4 %) out of a total 126 sample sites; and private builders/contractors, at 31 sites (or 24.6 %). In Varanasi, out of 125 total sample sites, Central construction agencies operated at 33 sites (26.4 %); state/local agencies, at 63 sites (or 50.4 %); and private builders/contractors, at 29 sites (or 23.2 %). In Allahabad, the distribution of sample sites was almost similar to what was found at Agra - being 0.8 percent, 75.2 %, and 24.0 % amongst Central agencies, state/local agencies, and private builders/contractors respectively - out of a total of 125 sample sites. In Lucknow, the resemblance was nearer to the distribution of sample sites proportions of Varanasi - showing 23.2 %, 51.2 % and 25.6 % amongst Central agencies, state/local agencies, and private

builders/contractors respectively, - out of a total of 125 sample sites. In essence, Central agencies' role was more prominent in the industrial capital of Kanpur; of state/local authorities, in Agra and Allahabad - followed by that in Varanasi and Lucknow; and the role of private builders/contractors, at an even level of about 'one-fourth share', out of 703 total, in all the five KAVAL towns. (See Table 2.01). Also, in the total the range in Central agencies' role was nearly 27.4 % in the aggregate but variagated in each of KAVAL towns and that of State Agencies ranged around 50 - 75% - being 50 percent in case of three towns and 75 % in two towns.

2.08 As presented in Table - 201, it can be seen that Central Construction Agencies covered 27.8 percent of the sample respondents' sites; state/local authorities, 47.5 percent; and 24.7 percent. Thus, nearly one-fourth of the sites' building activity was operated by the private sector and three-fourths by the public sector - during July - August 1977 (a period of rainy season). Another point that comes out is that Central Agencies were not functioning extensively as construction operators, at the time of the Survey in all the five towns; for example, C.P.W.D. and M.E.S., functioned mostly in Kanpur and Lucknow (or in the industrial and administrative capitals respectively of the State). Whereas, Railways' sites were in Varanasi and Lucknow - and only in a fringe way, in Kanpur and Allahabad. The private builders/contractors operated in all the five towns in association with State P.W.D., Municipal Corporations

TABLE - 2.01: Distribution of Sample Construction Units Surveyed,
by Construction Agency in KAVAI Towns.

Construction Agency	Number of Sample Units where work was in progress					
	Kanpur	Agra	Varanasi	Allahabad	Lucknow	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>Central Sector</u>						
(1) C.P.W.D.	(15.8)	-	(0.8)	-	-	(4.7)
	32		1			33
	(97.0)		(3.0)			(100.0)
(2) Railways	(2.5)	-	(25.6)	(0.8)	(23.2)	(9.5)
	5		32	1	29	67
	(7.5)		(47.8)	(1.5)	(43.8)	(100.0)
(3) M.E.S.	(46.0)	-	-	-	-	(13.2)
	93					93
	(100.0)					(100.0)
Sub-Total	(64.3)	-	(26.4)	(0.8)	(23.2)	(27.4)
	130		33	1	29	193
	(67.3)		(17.0)	(0.5)	(15.2)	(100.0)
<u>States and Local Bodies</u>						
(4) P.W.D.	(3.5)	(26.2)	(24.8)	(24.8)	(24.8)	(18.9)
	7	33	31	31	31	133
	(5.3)	(24.8)	(23.3)	(23.3)	(23.3)	(100.0)
(5) Mun.Corp.	(6.4)	(24.6)	(24.8)	(25.6)	(24.8)	(19.6)
	13	31	31	32	31	138
	(9.4)	(22.5)	(22.5)	(23.2)	(22.5)	(100.0)
(6) Dev.Auth.	-	(24.6)	(0.8)	(24.8)	(1.6)	(9.2)
		31	1	31	2	65
		(47.7)	(1.5)	(47.7)	(3.1)	(100.0)
Sub-Total	(9.9)	(75.4)	(50.4)	(75.2)	(51.2)	(47.7)
	20	95	63	94	64	336
	(6.0)	(28.2)	(18.7)	(27.9)	(19.6)	(100.0)
<u>Private Sector</u>						
Private	(25.7)	(24.6)	(23.2)	(24.0)	(25.6)	(24.8)
	52	31	29	30	32	174
	(29.9)	(17.8)	(16.7)	(17.2)	(18.4)	(100.0)
TOTAL	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)
	202	126	125	125	125	703
	(28.7)	(17.9)	(17.8)	(17.8)	(17.8)	(100.0)

- Notes:- (i) Figures within brackets-above the absolute figures add up - vertical percentages.
(ii) Figures within brackets below the absolute figures add up horizontal percentages.

and Town Development Authorities (except for K.D.A.) Yet another point is, that the construction works handled by the Central construction Agencies, were perhaps large in volume, size and area as also in value; their structures in general were more industrialised and also durable; they were also mostly one-time-period operations. It could be that these were in and around the towns - specially new non-residential building constructions as also non-building constructions of roads, bridges, sewerage, water-supply systems - and they were prone to be built, later on, with long time - gap.

2.09 Further, it turned out, that M.E.S. was the 'lead' construction central agency which handled the largest number of sample on-site projects - and that too, centralised in Kanpur where defence installations exist; and C.P.W.D. also concentrated in Kanpur. However, Railways, were building mostly in Varanasi and Lucknow - and State/Local Agencies, in Allahabad and Lucknow.

2.10 The sample 'construction sites' in the KAVAI towns (as in July - August 1977), revealed a certain distribution of the types of structures (that were being erected/raised on the sites). The types of buildings were: (i) residential - divided into (a) public sector, and (b) private sector); and (2) Non-residential: (i) Office; (ii) Educational; (iii) Hospitals/Dispensaries; (iv) Clubs/Hotels; (v) Entertainment; (vi) Commercial/Industrial; and (vii) Miscellaneous. Out of 703 sample sites, residential sites were 381: (a) 238 in the public sector; and (b) 143 in private sector. The other remaining sample sites were, 322 non-residential; (i) 72, office

building sites; (ii) 73, education building sites; (iii) 59, hospital/dispensary sites; (iv) 27, clubs/hotels; (v) 13, entertainment building sites; (vi) 57, commercial/industrial building sites; and (vii) 21, Miscellaneous building sites. Thus, the residential sites constituted - 54 percent of 703 sites; and non-residential, 46 percent. But it is normal that the land area of the residential sites and capital investment (as also total inputs of: building materials, and man-years/man-days) will be lower (may be, sizeably) than the land-use area, investment inputs of building materials and labour under non-residential building sites. (See Table - 2.03).

2.11 Further, coming to the sample residential sites, the proportions of the public sector and private sector, in the aggregate, were respectively 63 percent and 37 percent. But town-wise, Allahabad had a higher share in residential sites (75.2 %), out of a total sample of 125 residential and non-residential sites - and again, amongst the residential sites, proportion of the public sector constituted 70 percent. Further, in Lucknow, public and private sector's proportions in building sites were almost 50:50; but in the other three towns of Agra, Varanasi and Kanpur, the distribution of public and private sector residential sites - with little variations conformed to aggregative distribution spelt out in the first sentence of this paragraph. (See Table - 2.02).

Table - 2.02: Types of Building Construction Sites in KAVAI
Towns (during the months of July-August 1977).

Type of Building Construction	Number of Building Constructions Sampled in Different Towns:					
	Kanpur	Agra	Varanasi	Allahabad	Lucknow	Total
1	2	3	4	5	6	7
I. Residential						
1. Public Sector	(33.7) 68 (28.6)	(30.2) 38 (16.0)	(28.0) 35 (14.7)	(52.0) 65 (27.3)	(25.6) 32 (13.4)	(33.9) 238 (100.0)
2. Private Sector	(20.8) 42 (29.6)	(18.3) 23 (16.2)	(15.2) 19 (13.4)	(23.2) 29 (20.4)	(24.0) 30 (20.4)	(20.3) 143 (100.0)
Total	110	61	54	94	62	381
II. Non-Residential						
3. Office	(12.9) 26 (36.1)	(11.9) 15 (20.8)	(3.2) 4 (5.6)	(8.0) 10 (13.9)	(13.6) 17 (23.6)	(10.2) 72 (100.0)
4. Educational	(9.9) 20 (27.4)	(10.3) 13 (17.8)	(12.0) 15 (20.5)	(6.4) 8 (11.0)	(13.6) 17 (23.3)	(10.4) 73 (100.0)
5. Hospital/Dispensary	(4.0) 8 (13.6)	(7.9) 10 (16.9)	(16.0) 20 (33.9)	(4.8) 6 (10.2)	(12.0) 15 (25.4)	(8.4) 59 (100.0)
6. Clubs/Hotels	(2.0) 4 (14.8)	(4.0) 5 (18.5)	(11.2) 14 (51.9)	-	(3.2) 4 (14.8)	(3.8) 27 (100.0)
7. Entertainment.	-	(4.8) 6 (46.2)	(5.6) 7 (53.8)	-	-	(1.8) 13 (100.0)
8. Commercial/Industrial	(15.3) 31 (54.4)	(10.3) 13 (22.8)	(7.2) 9 (15.8)	(0.8) 1 (1.8)	(2.4) 3 (5.3)	(8.1) 57 (100.0)
9. Miscellaneous.	(1.5) 3 (14.3)	(2.4) 3 (14.3)	(1.6) 2 (9.5)	(4.8) 6 (28.6)	(5.6) 7 (33.3)	(3.0) 21 (100.0)
III. GRAND TOTAL	(100.0) 202 (28.7)	(100.0) 126 (17.9)	(100.0) 125 (17.8)	(100.0) 125 (17.8)	(100.0) 125 (17.8)	(100.0) 703 (100.0)

Notes: (i) Figures within the brackets above the absolute figures add up vertical percentages.

(ii) Figures within the brackets below the absolute figures add up horizontal percentages.

2.12 In case of part sample in respect of non-residential sites, 'office' and 'commercial and industrial' building sites were major partners in Kanpur and Agra; of which 'commercial and industrial' site represented one-third and one-fifth of the sample non-residential sites in these towns respectively. whereas, Varanasi and Lucknow reflected importance of 'social services' building sites (namely, 'educational', 'hospital and dispensary', 'clubs and hotels') with 71% and 51% of the sample of non-residential sites respectively. Allah bad having registered prominence for residential sites and (and moreso in public sector sites) came out better, with construction - in less prominent group in non-residential site in respect of office and educational sites. In over-all aggregative analysis of non-residential group of sites, however, 'office' and 'education' sites together made a proportion of 45 % - followed by 'industrial and commercial' sites, - at 18%; 'clubs and hotels' sites 8.5%; entertainment sites, 4 %. (See Table - 2.02).

in J.F.

2.13 The methods of entry into the building labour market, / has been apprenticeship^{1/} institutions - where the master craftsman and journeyman were the individual person(s) who are used to train, unskilled or semi-skilled individuals, on the

1/ In the building industry sector, 'a high value attaches to the apprenticeship system as the recognised method of training for employment and of entry into the ranks of skilled workers A first objective is to secure that no person should enter the industry as a skilled worker unless he had been properly trained. The 'back-door' to the industry must be closed. (U.K. Building Apprenticeship and Training Council, Final Report). July 1956. One Craftsman ordinarily need not take more than six apprentices.

basis of 'faithfulness', 'subsistence wage below customary rate', and often by living with the master and/or journeyman. In India, this system is in vogue without any institutionalisation but as a part of the custom and tradition - though, of late, building trades schools and technical institute's are in operation with full finance from the government/trusts; but their size and limited base makes no dent on the problem of building efficiency of the building labour force. Yet it is true that professionals - architects, civil engineers/overseers, structural and highway engineers are having well-structured technological, professional and engineering colleges, universities and Institutes for their training. However, the building labour exodus stems from and is made of unskilled adults migrating from villages often fit for nothing other than the lowest type of casual labour. This phenomenon makes it urgent to prepare a system of training at district levels and sub-district levels to train the people in the logic and frame of elementary building crafts - including vocations of plumbing, iron-mongering, electrician's role etc; they need to be passed through the ladder of progressively complex processes with steadiness and care. (See also Chapter - III and IV.

2.14 The sample survey data in the KAVAI towns from 703 ^{the} building sites equal/number of workers, with a distribution as follows:- 265 skilled workers; 171, semi-skilled; and 267 un-skilled. Their genetic origins are hereditary, in case of 358 workers (or 50.9 percent); and casual (or casual drifters), for 423 (or 60.2 percent). Skilled workers, numbering 260 are distributed in 9 categories (of mason - 93, carpenter - 38, plumber - 12, electrician - 28, painter - 29, blacksmith - 31, surveyor - 2, engineer/overseer - 1 and others - 6.

Semi-skilled workers, numbering 171, are distributed under 4 categories (Bhisti - 58, glazier - 32, scaffolder - 53, and others under training - 33). Unskilled were helper/beldar - 254 and others - 13. It appears that the proportion of the unskilled labourers, in the sample, turned out lower in number - but if the weights are added to the productivity - which is crucial in assessing the man-power needs, the differential spread cannot be regarded unjustified - particularly when the supply of unskilled labour is not a problem, in the sea of surplus unemployed and under-employed manpower. (See Table - 2.03).

2.15 Irrespective of the absence of complementarity in the distribution of the labour force in different building trades skills - in the two characteristics of 'hereditary' and 'casual', and the overlapping of the data, it can be stated that amongst the first two trades (that is, masonry and carpentry - which are the crucial trades) the size of 'casual labour' is more in absolute size(s) than that of the 'hereditary labour'. The aforesaid relationship is almost all-pervading in other skilled/semi-skilled/unskilled labour in all other trades - except for the electrician - where the hereditary composition of labour is almost twice that of the casual labour in absolute numbers; perhaps because it is basically an urban-based trade.

2.16 So far, in Chapters I and II, the dimensional parameters of the sample and the main variables of land sites type of structures to be raised, the building skills, institutional construction agencies (as employers) have been presented for the KAVAI towns - flowing from the information collected

Table - 2.03: Sample Distribution of Building Labour according to Construction Skills and their Genetic Origins either Hereditary or Casual.

Type of Skill (1)	Number (2)	% %	Hereditary (3)	% %	Casual (4)	% %
I. Skilled						
1. Mason	93	(13.2)	53	(14.8)	71	(16.8)
2. Carpenter	58	(8.3)	43	(12.0)	44	(10.4)
3. Blacksmith	31	(4.4)	19	(2.2)	25	(5.9)
4. Painter	29	(4.1)	13	(3.6)	16	(3.8)
5. Electrician	28	(4.0)	19	(5.3)	10	(2.4)
6. Plumber	12	(1.7)	3	(0.8)	5	(1.2)
7. Surveyor	2	(0.3)	-	-	2	(0.5)
8. Engineer/Over-seer	1	(0.1)	2	(0.6)	2	(0.5)
9. Other skilled workers	6	(1.0)	1	(0.3)	2	(0.5)
<u>Sub-Total</u>	<u>260</u>	<u>(37.0)</u>	<u>142</u>	<u>(39.3)</u>	<u>177</u>	<u>(40.0)</u>
II. Semi-Skilled						
10. Bhisti	58	(8.3)	33	(9.2)	38	(9.0)
11. Glazier	32	(4.6)	7	(2.0)	8	(1.9)
12. Scaffolder	53	(7.5)	15	(4.2)	15	(3.5)
13. Others	33	(4.6)	16	(4.5)	17	(4.0)
<u>Sub-Total</u>	<u>176</u>	<u>(25.0)</u>	<u>71</u>	<u>(19.9)</u>	<u>78</u>	<u>(1.70)</u>
III. Un-Skilled						
14. Helpers/Beldar	254	(36.1)	144	(39.7)	164	
15. Others	13	(1.8)	1	(0.3)	6	
<u>Sub-Total</u>	<u>267</u>	<u>(38.0)</u>	<u>145</u>	<u>(40.7)</u>	<u>170</u>	<u>(38.30)</u>
IV. GRAND TOTAL	703	(100.0)	358	(100.00)	423	(100.00)

Notes: (i) Figures enclosed within brackets indicate proportions.

(ii) Numbers under Col.(3) and (4) and also their percentage are neither complementary nor exclusive and there exists overlapping.

tabulated from Schedule item Nos. 1.0 to 1.6 at the time of the survey. More analytical data are examined in the next few paragraphs in this Chapter - in respect of sex, marital status, rural or urban origins, age-distribution, and educational standards of the construction/building labour 'at work' in the sample-nets of KAVAI towns (arising out of Schedule item Nos. 1.7 to 1.11).

Sex-Wise
Distrib-
ution

2.17 Out of 703 labourers interviewed, sex distribution is overwhelming in favour of males who were 687 (or 97.7%) - and females were only 16 (or 2.3 %) and out of these 15 were unskilled. In respect of age-distribution, the mode age-group was '18-34 years' - holding 483 (or 68.7 %) of the total of labourers 703/- followed by '35-49' age-group - enveloping 139 (or 19.8%) and 'over 49 years' group, having 56 (or 8%). The lowest strength was that of 'less than 18 years' age-group with 25 persons (or 3.5%) - (See Tables 2.04 and 2.05)..

TABLE - 2.04 - Sex and Age Distribution of Sample Building Labour of KAVAI Towns. (mid-1977).

S.No.	Type of Skill	Male	Female	Total
1	2	3	4	5
1.	Skilled	259	1	260 (37.00)
2.	Semi-skilled	174	2	176 (25.00)
3.	Unskilled	252	13	267 (38.00)
4.	<u>Total</u>	<u>687</u>	<u>16</u>	<u>703</u> (100.00)

Note:- Figures with brackets indicate percentages.

TABLE 2.5 - Age Distribution of Sample Building Labour of KAVAI Towns (mid-1977).

Sr.No.	Type of Skills	Less than 18 years	18-34 years	35-49 years	Over 49 years	Total
1	2	3	4	5	6	7
1.	Skilled	6	188	52	14	260 (37.00)
2.	Semi-skilled	1	113	37	25	176 (25.00)
3.	Unskilled	18	182	50	17	267 (38.00)
4.	<u>Total</u>	<u>25</u>	<u>483</u>	<u>139</u>	<u>56</u>	<u>703</u> (100.00)

Note: Figures within brackets indicate proportions).

2.18 Nearly two-thirds (67.5 %) of the sample labour force was married; not-married, 31.6 %; and the others were perhaps widowers/divorcees. However, the proportion of the married in the skilled stratum was the highest (at 72.3 %) - followed by unskilled stratum at 65.9 % and 63.1 %, for semi-skilled. Probably, the skilled persons because of higher income-levels and regular income were in a position to bear the burden expenses for family; as also in rearing the children who could be nursed better; in this respect the semi-skilled and unskilled were more vulnerable. (See Table - 2.06).

Marital
Status of
Building
Labour

TABLE - 2.06: Marital Status of the Building Labour in KAVAI Towns (mid-1977).

Type of skills	Married	Not-married	Others (widowers/ divorcee)	Total
1	2	3	4	5
Skilled	188 (72.3%)	72 (27.7%)	- (nil %)	260 (100.00)
Semi-skilled	111 (63.1%)	60 (34.1%)	5 (2.8%)	176 (100.00)
Unskilled	176 (65.9%)	90 (33.7%)	1 (0.4%)	267 (100.00)
<u>Total</u>	<u>475</u> (67.50)	<u>222</u> (31.60)	<u>6</u> (0.90)	<u>703</u> (100)

2.19 Education levels of the skilled labour were at higher points - which is not surprising since education imparts and injects the potential for imbuing the culture of skills.

25.4 %, of the skilled labour were 'matriculates and above'; and additional 40.4 % were, 'literate'; and only about one-third were 'illiterate'. Whereas, proportions of the 'semi-skilled' and 'unskilled' labour were lower at 11.2 % and 5.1 % respectively in regard to 'matriculates and above', as also in regard to literates in addition were at 40.9% and 43.6% respectively; further, the share of 'illiterates' were around 50 percent for the semi-skilled and unskilled vis-a-vis only 34.2 percent for skilled. (See Table 2.07).

Table - 2.07: Educational Levels of the Skilled, Semi-skilled and Unskilled Building Labour in KAVAL Towns (mid-1977).

Type of skills	Matriculation and above	Literate	Illiterates	Total
(1)	(2)	(3)	(4)	(5)
Skilled	66 (25.4)	105 (40.4)	89 (34.2)	<u>260</u> (100)
Semi-Skilled	18 (11.2)	72 (40.9)	86 (48.9)	<u>176</u> (100)
Unskilled	14 (5.1)	116 (43.6)	137 (51.3)	<u>267</u> (100)
Total	<u>98</u> (31.4)	<u>273</u> (41.7)	<u>312</u> (26.9)	<u>703</u> (100)

Note: Figures within brackets show percentages.

S U M M A R Y

The construction activity of 'residential and non-residential' at any time is usually a major part of total construction activity. Therefore, the sample frame is linked to such constructions; in addition the other constructions are often one-shot operations and are spread over long distances, such as, roads, sewers, bridges - and are not that localised as the 'sites' for building constructions in operation. Only to 703 (about 700) labour respondents the Schedule was canvassed in the KAVAI towns - in these towns the universe of the construction labour was 18,055; thus the sample size constituted about 4 percent of the universe. Town-wise, the sample sizes were: Kanpur, 202; Agra, 126; and the rest of the three towns (namely, Varanasi, Allahabad and Lucknow - each) had a sample of 125.

Public Sector Construction Agencies' 'building sites' in the sample, represented nearly 75%; and private sector builders/contractors, only about 25%. The Central Construction Agencies (namely, C.P.W.D., Railways, and M.E.S.) had 27.4 % of the 'sites' in the sample; State/Local Agencies (State P.W.D., Municipal Corporations/Development Authorities, covered 47.7 % of the sample sites; and private sector, 24.8%. Railways construction activity was prominent in Varanasi and Lucknow; C.P.W.D.'s, in Kanpur; and M.E.S.'s, also in Kanpur. State P.W.D. and Municipal Corporations were prominent in all the towns in sample sites - except in Kanpur; Development Authorities, in Agra and Allahabad; and Private Sector was less prominent in all the towns - except in Kanpur.

More residential 'sites' are represented in the sample, numbering 381 (or %): 238 public sector, and 143 of private sector. Next order is of education 'sites', 10.4 %; office sites, 10.2%; hospital buildings, 8.4 %; commercial and industrials, 8.1 %; clubs/hotels, 3.8%; entertainment sites, 1.8% etc. - all these in non-residential building sector.

Construction labour's occupational distribution between 'hereditary' or 'casual' origins. Amongst the occupation skilled masons and carpenters - represented 13.2 % and 8.3 % respectively in the sample; and blacksmith, painter, and electrician each were representing about 4 percent. The semi-skilled bhisti, and scaffolder and glazier were respectively formed 8.3 %, 7.5 % and 4.6 % in the sample; and unskilled helpers/beldars, constituted 36.1 %, in the sample.



III - ORIGINS AND COMPOSITION OF CONSTRUCTION LABOUR AND THEIR HOUSEHOLDS AND ASPIRATIONS.

3.01 A study^{1/} done in 1967-68, analysing the work done in construction by the central public sector construction agencies noted certain basic aspects of construction sector:- (i) geographical locations of construction establishment keep on changing; (ii) no continuity in employment - and it is plagued by interruptions due to bad weather; (iii) contractors only retain a small key-labour - and rely for operative labour at the locations of the project; (iv) contractors, on account of their handling simultaneously a number of contracts, are highly mobile and therefore elusive for establishing any contact; (v) sub-contracting is often a rule, because of need for specialised labour and equipment - and to eke out information from them is difficult and slippery; (vi) the wide spectrum of construction industry, with spread in labour skills, the commonality of denominator becomes intricate and becomes elusive to standardise in India

3.02 The proportion of the construction labour/as revealed by 1961-Census, was 2.1 percent of total labour force, but it declined to 1.9% as registered by 1971 - Census and it fluctuates between 5 - 6 percent of the non-agricultural labour force. The current data on construction, earlier collected by the Simla - located Labour Bureau, are since

1/ C.M.PALVIA: Employment in Construction Industry - its relation to Investment and Wages (Quarterly Journal of National Buildings Organisation, Government of India, Vol. X, iv No. pp).

1958, collected by the Delhi-based Office of the Director-General of Employment and Training - through a net-work of Employment Exchanges - from public-sector establishments having employment of '25 persons or more' and from private-sector

establishments, employing 10-24 persons in over 300 districts of the country. The coverage expanse embraced nearly 0.8 million workers in the public sector and 0.22 in the private sector (in establishments employing '25 or more' persons). The occupational compositions of the public and private sector in regard to construction establishments differs significantly as revealed by the analysis of the data generated, by the fortnightly labour returns, submitted by the "Registered Contractors" - who were contracted to consummate certain construction projects of one central construction agency namely, C.P.W.D.^{2/} Employment for 'professional and technical', 'clerical and sales' work is relatively more in the public sector, and employment in the private sector abounds in 'unskilled' labour' and 'craftsmen', as below:

^{2/} As a result of these steps employment coverage improved between 30.9.64 and 31.3.66 - by almost 31.5 percent. This action was taken under a Fourth Plan Statistical Scheme - under sub-group of "Housing and Building Statistics". The major items sought in these returns - as prescribed under Model Rules for ensuring safety, health and welfare of building workers, were: (i) skilled and unskilled employment; (ii) man-hours worked by adults and child; (iii) total costs of materials, labour wages paid, overhead charges; (iv) creches provided, etc. Nonetheless, it is true that the contractors do violate the prescribed rules.

Table - 3.01: Proportions of the Occupational Pattern of Workers in the Construction Industry of Public and Private Sectors in India.

(1)	(2)	(3)
Occupation	Public Sector	Private Sector
	%	%
1. Professional and Technical	11.92	2.51
2. Administrative and Executive	1.62	0.68
3. Clerical and Sales	13.04	4.27
4. Agriculture, Mining and Quarrying	1.33	0.98
5. Transport & Communications	3.96	1.18
6. Crafts and Production	12.58	16.57
7. Services	0.35	0.12
8. Unskilled (in office)	8.48	6.88
9. Unskilled	46.72	72.81

3.03 Further, the ratio between 'building construction' and 'total construction' turned out to be 2:3; the over-all ratio between the employment of skilled and unskilled labour as 1:2.8; ratios between labour wages; materials; overhead charges - as 2.3:8.1:1; and investment per man-day - Rs.17.6 as in mid-1966 prices, in the total construction sector. But in case of building sector the skilled: unskilled labour ratio, was 1:2.2; labour wages: materials; overhead charges - as 2.5: 9.0: 1; and per man-day investment, Rs.18.5^{3/}

3.04 Again, a study^{4/} accomplished by National Council of Applied Economic Research (which was sponsored by the National

3/ Total investment by CPWD, of Rs.4.50 million during 1965-66, as revealed in the Annual Report of the Ministry of Works, Housing and Urban Development; investment per man-year was Rs.18.75, when the employment in man-years was 85,000 according to 'labour returns' and 80,000 by CPWD.

4/ "Tax Incidence on Housing" (NCAER, 1966).

Buildings Organisation, with a grant-in-aid) while presenting data of surveys, conducted in five cities (namely, Ahmedabad, Delhi, Hyderabad, Madras and Patna) of houses costing 'Rs.25,000 and above' found ^{that} the labour cost, spread between 16.7 - 27% and material cost, 69.27 - 78 percent, and ^{for overhead charges} 3.64 - 7.08 percent. Nonetheless, it is realistic to regard that the major cost consisting of building materials ranges between 70 - 75 percent, and labour about 20 - 25% and the other charges around 5 - 8 percent.

3.05 Main concern of the present study is the labour problems in Building/Construction sector. Hence, after the above prognosis, the origin, wage-levels, type of skills etc., recruitment process, training etc. are the relevant factors to be analysed.

3.06 In the larger towns, **after** following the industrial development, the man-power is recruited, to a great degree, in the initial stages, from the migrants who are 'pulled' to the city to fill the vacant jobs. Again, the rural-dwellers also migrate to the towns, in the hope of getting some work, since they happen to be unemployed or under-employed in the villages - and they form another stream of labour - as they are 'pushed' out from the villages to towns - and moreso larger towns. A long-term pattern of the migrants to the industrial capital of Kanpur (in U.P.), reveals a radical change in the proportion of migrants and their composition according to place(s) of origins - as 'emerging from a study on: Slum and Squatter Settlements in A Indian Million (+) City - Policies,

Programmes and Perspectives". (See Table - 3.02).

Table - 3.02: Changing Trends in Migration Origins from 'Pre-1940 to 1955 to 1970's upto 1976 in Kanpur City.'

Periods of Migration.	From Kanpur District	From Neighbouring Districts.	Other States of U.P. and Abroad.	Total
(1)	(2)	(3)	(4)	(5)
(a) Migrants pre-1940	7.65	33.54	3.87	(45.05)
(b) Migrants 1941-45	1.09	10.25	8.87	(20.21)
(c) Migrants 1946-50	1.24	16.62	10.00	(27.88)
(d) Migrants 1951-55	1.98	14.89	1.94	(18.78)
<u>Total</u>	<u>11.92</u>	<u>75.40</u>	<u>12.68</u>	(100.00)
1976-Survey	50.20	46.50	3.30	(100.00)
(i) Slum Dwellers	50.60	46.30	3.10	(80.00) (100.00)
(ii) Squatter Dwellers	48.50	47.50	4.00	(20.00) (100.00)

Source: B.L. Mazumdar: Social Countries of an Industrial City - Social Survey of Kanpur City (Asia Publishing House, Bombay, 1960).

(2) V. Jagannathan and C.M. Palvia: Slum and Squatter Settlements in an Indian Million (+) City - Policies, Programmes, and Perspective: (Tables - 3.03 and 3.04 pages 71 and 72, 1977).

3.07 It is interesting to observe that 'origins' of the immigrants in Kanpur city were: (1) Kanpur District; (2) Neighbouring and/or other districts of U.P. other than Kanpur; (3) other States and other countries. The origins of migration - inflows, in Kanpur city, for the periods (1) Pre-1940 (ii) 1941-45; (iii) 1946-50; (iv) 1951-55; and (v) a sample of the 1976 - Survey, are presented in this study in Table 3.02. The data reflect that from the period of 'Pre-1940 - 1955', the proportion of

total migrants from "Kanpur district itself", increased from 11.92 percent to 50.20 percent, in 1976; proportion for the "neighbouring and other districts of U.P." came down to 46.40 percent, in 1976 from 75.40 percent; in "Pre 1940 - 1955" period; and so also, the share of the migrants from 'other States and abroad' declined to 3.30%, in 1976, vis-a-vis 12.68 percent, in 'Pre-1940 to 1955' period. It thus emerges that the shares of migrants transformed to almost 50:50 (or 1:1), in between ^(a)Kanpur District on the one hand, and ^(b)the 'world' on the other. Formerly, it were the migrants from 'the world' who made a share of above 88 percent and the 'migrant labour of Kanpur District' only 12 percent. Earlier the ratios were 7.3:1 ; and change is that the 'sons of the district' get entry in the labour market in substantial manner, making the ratio almost to 1:1.

3.08 The items from 2.0 to 2.8, of the Schedule for the ^{emit} five KAVAL units, information on migration trends and composition of the construction/building labour's migration (or otherwise) stream; however it does not provide the inter-temporal changes in the intensity of the migration waves. ^{stated} Nonetheless, ab-initio, it is already / that during the 1950's, 1960's there had been a decline in the in-migration of construction labour in KAVAL towns - as explained in Chapter - I.

3.09 Table - 3.03, shows that, out of ^asample 703 construction labour, 305 labourers (or 43.5%) were urban-based; and 398 (or 56.5%) were rural based, during mid-1977. Of the 'urban-based' and 'rural-based' construction labour, proportion of 'matriculation and above' education level, were 14.4 percent

and 13.6 percent respectively; the literates, were 48.1 percent and 51.9 percent; and illiterates were, 49.4 percent and 48.2 percent. In fact, the composition of the initially urban-based and rural-based labour, as regards educational level, no worthwhile differentials exist; which probably establishes that the rural-based labourers/or their children converted themselves to reach equivalence in education standards with urban-based fellow workers as a reflection of 'demonstration effect' as also unconscious urge to achieve an equal level of marginal productivity. At the same time, the columns 5, 6 and 7, further create the image that those who came to KAVAI towns - from other districts or from other States - were already having a greater share in the higher level of educational attainments at 16.2 percent and 19.6 percent than that of the local residents of the KAVAI districts. Perhaps, before the immigrants (whether from urban or rural origins) had an edge, as regards educational levels, in the labour market. At the same time, the proportion of the local labour (whether with urban or rural origins) to the total sample was higher at 466 and thus formed two-thirds of the total sample of 703 labourers.

Tan;e - 30.3: Educational Levels of the Building Workers and their Origins from Rural /Urban Areas - as also from (i) Local District, (2) Other Districts of U.P., and (3) From Other States.

Educa- tional Level	Urban	Rural	Total Col.2+3	NAVAL Town District	Other District of U.P.	States other than U.P.	Total Col.5+6+7
1	2	3	4	5	6	7	8
I. Matri- culat- ion and above.	44 (14.4)	54 (13.6)	98 (13.9)	56 (12.1)	31 (16.2)	11 (19.6)	88 (12.5)
II. Literate (3-R's)	141 (46.2)	152 (38.2)	293 (41.7)	174 (37.3)	104 (54.5)	15 (26.8)	293 (41.8)
III. Illiter- ate.	120 (49.4)	192 (48.2)	312 (44.4)	236 (50.6)	56 (29.3)	30 (53.6)	322 (45.7)
IV. Total	305 (100.00)	398 (100.00)	703 (100.00)	466 (100.00)	191 (100.00)	56 (100.00)	703 (100.00)

3.10 The hypothesis that 'higher education levels turn people into skilled workers' is not true fully; since about 68 percent of the 'matriculates and above level', 98 labourers, could be skilled ones. However, in case of semi-skilled labour, there were almost equal shares in numbers - of the 'matriculate and above', 'literate', and 'illiterate'. No surprise should visit the readers, to notice about 30.5 percent of the illiterates, in the 'skilled' category; and on the other to watch that the proportions to the corresponding frequencies were almost equal for 'literate' and 'illiterate' in the semi-skilled and unskilled categories. (See Table 3.04).

Table - 3.04: Educational Levels and Building Skills of Sample Building Workers:

	1	2	3	4	5
Skill \ Education Levels	Matriculation and above	Literate	Illiterate	Total	
Skilled	66 (67.3)	105 (35.8)	89 (30.5)	260 (37.0)	
Semi-Skilled	18 (24.3)	72 (24.6)	86 (27.6)	176 (25.0)	
Unskilled	14 (18.4)	116 (39.6)	137 (43.9)	267 (38.0)	
<u>Total</u>	<u>98</u> (100.00)	<u>293</u> (100.00)	<u>312</u> (100.00)	<u>703</u> (100.00)	

Note: Figures within brackets show percentage distribution.

3.11 Out of a total sample of 703 labourers, 284 were not migrants, and other 7 labourers who were migrants did/could not give any reason for migration to KAVAIL towns. Thus the respondents to item - 2 of the Schedule, / were 412. In order to know the spread of the migrant respondents in terms of the reasons for migration for two independent characteristics (namely, skill and education) have been analysed in Table - 3.05. Of the 140, skilled migrants - only 49 (or 35%) were 'matriculates' (or 50 percent of matriculates' total sample of 98); and out of 113 literate migrants, 95 were semi-skilled (or 84 percent); and out of 250 illiterate migrants, 177 were unskilled (constituting 71 percent). Thus, it is important that amongst the migrants, matriculates, only 35 percent, semi-skilled, 84 percent; and unskilled, 71 percent. This composition of migrants establish that in the waves of

migrants, semi-skilled and unskilled were overwhelmingly large because they had no work at their places of origin.

Table - 3.05: Skill and Education Levels of the Migrant Labour and the Factors Motivating the migration to larger KAVAI Towns.

Skills/ Education Levels	Motiva- ting factors	Reasons for coming to KAVAI Towns					Total
		Insuff- icient Income	No Work in vill- age.	Family quarrels & unhappi- ness.	Better Prosp- ects.	Relations and frien- ds to get a job.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	

I. Skills

(i) Skilled	18	89	2	9	22	<u>140</u> (34.00)
(ii) Semi-Skilled	10	76	3	6	-	<u>95</u> (23.0)
(iii) Unskilled	41	93	8	10	25	<u>177</u> (43.0)
<u>Total</u>	<u>69</u> (17.00)	<u>258</u> (63.00)	<u>13</u> (3.0)	<u>25</u> (4.00)	<u>47</u> (11.00)	<u>412</u> (100.00)

II. Education Levels

(i) Matriculates and above.	3	37	1	2	6	<u>49</u> (12.00)
(ii) Literate (3-R's)	22	56	8	9	18	<u>113</u> (27.0)
(iii) Illiterate	44	165	4	14	23	<u>250</u> (61.00)
<u>Total</u>	<u>69</u> (17.00)	<u>258</u> (63.00)	<u>13</u> (3.0)	<u>25</u> (4.00)	<u>47</u> (11.00)	<u>412</u> (100.00)

Against a total of 412 respondents, 258 (or 63 %) migrated because 'they had no work' and of them 165 (or 40%) were 'illiterate'. Further, semi-skilled and unskilled migrants together were 272 (or 76%), and literate and illiterate together numbering 363 (or 88%). But matriculates and above'

migrants formed only 12 percent of the 412 respondents. However, amongst the 'skilled' and 'semi-skilled', it can be averred that 'skilled' migrated by 'pull' factor of better prospects but the semi-skilled, partly on account of 'pull' factor and partly on account of 'push' factor. The predominant motivating factors^{were} / 'no work in village' (for 63 percent of migrants), - followed by the factor of 'insufficient income' (for 17 percent of migrants) and the factor of 'Relations and friends to get a job' (for 11 percent of migrants), but the least motivating factors were 'better prospects' and 'quarrel and unhappiness'-forming only 4 percent and 3 percent of the respondent migrants respectively.

3.12 The migrants coming to KAVAL towns, according to age-groups were largely within '18-49 years and above' - and they constituted nearly 96 percent and those below 18 years only 4 percent. Again, those 'above 49 years', were 11.7 percent; leaving a sizeable percentage of 84.0 percent for the age-group '18-49 years' - and within them '18-34 years' people were 77.5% - and also they formed 62 % of a total number of 412 of respondent migrants. (See Table 3.06).

Table - 3.06: Age Distribution of Migrants Building Workers in KAVAL Towns:

(1) <u>Age-Group</u>	(2) <u>Frequency</u>	(3) <u>%</u>
1. Less than 18 years	18	(4.3)
2. 18-34 years	254	(62.0)
3. 35-49 years	92	(22.0)
4. Over 49 years	48	(11.7)
Total	412	(100.00)

3.13 Out of 703 sample workers (with jobs), 400 (or 56.9%) workers came through the Jamadar/Mistri; to 191 (27.2%) through friend(s); 50 (or 7.1 %) through self-effort; 36 (or 5.1 %), through employment exchange(s); 23 (or 3.3 %), through the contractor/employer; and 3 (or 0.4%) came, through relations. Actually Jamadar/Mistri, and the friend(s) - who together formed the main planks of generating employment were resources to 591 (or 84.1 %) of the workers - followed by another 7.1 % workers, by self-effort. These three constituted resources for 91.23 % of the workers in getting the job. The contractor(s), employment exchange(s) and relations were helpers only in an insignificant manner - three making a helpers' role, for only 8.5% of the workers. (See Table 3.07).

Table - 3.07: Resources/Agencies helping the construction labour to secure jobs in KAVAIL Towns:

(1)	(2)	(3)	(4)
Resources/Agencies	No. of workers getting jobs.	%	Cumulative Percentage
1. Jamadar/Mistri	400	(56.93)	(56.93)
2. Friend(s)	191	(27.20)	(84.13)
3. Self-effort (No help)	50	(7.10)	(91.23)
4. Employment Exchange(s)	36	(5.10)	(96.33)
5. Contractor	23	(3.0)	(99.60)
6. Relation(s)	3	(0.4)	(100.00)
7. <u>Total</u>	<u>703</u>	(100.00)	

3.14 It is evident that contractor/Mistri is the main bridge for providing job to the building/construction labour. This institution of the Jamadar/Mistri is centuries' old; and efforts to eliminate or substitute by another system - even

Employment Exchanges could not erase this institution. In the industrialised countries, this type of institution - with prior apprenticeship was a usual method of entry to trade and industry - and when modern manufacturing industries and trade-system grew in India, during the last century, the intermediary Jamadar was the main medium of providing job to the workers seeking jobs. For the unskilled and semi-skilled, the employment could be possible to keep steadiness in employment and care of these workers by the leadership which could arrange 'learning' and 'training' as a custom. Master craftsmen and journey men functioned, in the construction sector - as the leaders and teachers to train the younger people by paying them a 'stipend' during apprentice period - and for all this, the would-be-employees had to pay some charges and loyalty to the leaders/teachers.

3.15 Notwithstanding the building and construction industry having been mechanised, along with entry of new building materials and methods, prefabrication of doors, windows, wall-panels, systems engineering have been slowly reducing the role of unskilled labour - but it is certain that 'maintenance and repairs'^{5/} work will continue to have demand for unskilled workers as well as skilled workers. The construction firms'

^{5/} In 1948, the U.K. Ministry of Works had estimated that 38 percent of the total output of building and construction industry is 'maintenance work', and another 11 percent for civil engineering works and maintenance - and about 40 percent of the workers are employed in repairs and maintenance' work, and another 13 percent on 'repairing' war damages and conversion of houses - leaving on new construction of all work of all types. (Gertrude Williams: Recruitment to Skilled Trades, No.83, Routledge & Kegan Paul, London, 1957).

others

sises in U.K., were 42%, one-man business, and 36%, no more than 5 persons; and remaining were bigger of 'more than 5 persons'. Again, the small firms concentrate on 'repairs and maintenance work' and the larger ones on 'new construction'.^{6/}

3.16 Sub-contracting for obtaining 'labour supply' to larger firms is arranged from firms of sub-contractors; these firms can offer higher wages and at the same time ensure regular supply of needed labour - which a general builder is not in a position to organise. This 'modus-operandi' does create stumbling blocks in the process of providing training to the labour in different building and construction skills; weaker elements, also disrupt training operations and create vulnerability to regular employment; and during war-time house building becomes first casualty and also construction of less important buildings also comes to standstill - resulting in huge unemployment^{2/} for building and construction labour.

3.17 In developed countries, construction/building labour is characterised by: (i) unionism - oriented and entry into occupation is strictly regulated/bound by rules and procedures; (ii) institutionalised and streamlined job placement through

^{6/} Gertrude Williams: Op.cit.

^{2/} 'Just prior to the War, 18% of the labour force belonging to the industry was registered as unemployed, and in the depressed areas, such as South Wales and the north of England, where the decline in the export industries reduced the demand both for the factories and houses, one in three of all building employees was out of a job'. (op.cit.pp.86). By contrast, when floods, harricanes and earthquakes visit they for rehabilitation raise demand for building labour; and countries which become arsenals for supplies of war needs to belligerents, could however be the fertile grounds for escalating more employment in building and construction sectors.

employment exchanges - including one for students who are educated according to dynamism of job-market; (iii) yardstick-based recruitment, training, promotion, etc; (iv) information-oriented professional bodies which equip the labour-market entrants about market phenomena; and (v) well-set personnel offices of the organised big firms which have quotas for various job-placements. On the other hand, in developing countries, on all the above elements, encouragement is not fermented towards unionism, institutionalisation of employment exchange, indicator-tailored employment, regular feeding with employment information system, and employers' culture of hospitality to structured scientific employment and placement techniques. Thus traditional building labour market of the developing countries (and so also India) leave the labour to hold the baby and employer to fatten his profit-levels without seeking welfare of the labour force; in the process, intermediary Jamadar/Mistri continue to operate. Jamadar-^{8/}intermediary retains a large number of semi-skilled and unskilled building workers and at a short-notice can mobilise them to work 'on-site' for a day or couple of days/weeks; he is in constant and direct liaison with the employer/- contractor and takes advance money of a part of wages (or sometimes opts for deferred payments from contractor). However, skilled labour is engaged often by the employer/contractor.

8/ A contract labour survey done for the period 1957-61, by Labour Bureau (Simla) observed for the urban areas-that 'of the 53 contractors covered - 18 recruited their workers directly, 14 through agents/Jamadars, 6 through existing workers, and the remaining 18 adopted more than one method.

3.18 In a study^{9/} done for Delhi building labour, it was noted that 42 percent got employment through Jamadar/Mistri, and 11 percent through contractor, and 23% through 'relative and/or friend'. On the other, as shown in Table - 3,07, in KAVAL towns, the 'Jamadar/Mistri' as fragile institutionalised intermediary effectively provided employment to 56.93 percent of the sample labourers; and 'friend(s)', to 27.2 percent; and the roles of the 'contractor' and 'relation' were at insignificant proportions of 3 percent and 0.4 percent. Delhi being more 'unionalised', ^{with} employment exchanges medium, and more of 'building activity' and immediate cash-payments to labour has lesser role for the Jamadar/Mistri 'intermediary' and the friend is less helpful because of more of anonymity in the multi-million metropolis - whereas, in KAVAL towns with less of (i) population, (2) unionalised life, (3) less building activity, and (4) less avenues of employment, the building labour looks to real help in a friendly spirit from Jamadar (in spite of higher commission charged) and also from the 'friends in need' - because of relatively more warmth from friends in less than million-population towns.

9/ C.K.Johri and S.M.Pandey: Employment Relationship in the Building Industry, Table - 1, pp. 3 (Shri Ram Centre for Industrial Relations, New Delhi - 110005).

Table - 3.08: Period of Waiting for the Sample Building Workers in KAVAL Towns - according to skilled, semi-skilled, and unskilled grades.

(1)	(2)	(3)	(4)	(5)
Period	Skilled	Semi-skilled	Unskilled	Total
	%	%	%	%
1. Immediately	1 (0.4)	3 (1.7)	- (..)	4 (0.06)
2. Within one week	81 (31.1)	27 (15.3)	90 (33.7)	198 (28.2)
3. 1-4 weeks	102 (39.2)	87 (49.4)	126 (47.2)	315 (44.8)
4. More than 4 weeks.	54 (20.8)	47 (26.7)	28 (10.5)	129 (18.3)
5. Not applicable	22 (8.5)	12 (6.8)	23 (8.1)	57 (8.1)
Total	260 (100) (37.00)	176 (100) (25.00)	267 (100) (38.00)	703 (100.00) (100.00)

3.19 After coming to the KAVAL towns, only 4 persons (or 0.6%) of the 703 sample building workers got immediate job; 28.2 %, within a week; 44.8 %, in 1-4 weeks; and 18.3 %, in 'more than 4 weeks'. However, cumulatively, nearly three-fourths of the sample labourers, got job within 4 weeks - though the major part of these (nearly two-thirds), in any case, took 1-4 weeks. In one sense, it is encouraging that even in low building activity towns, nearly 75 percent of building workers, got jobs within 4 weeks^{10/} a phenomenon not so rosy in case of educated white-collar workers.

^{10/} In Delhi, nearly 84% of the sample labourers got jobs within four weeks and two-thirds of them within one week. (C.K.Johri & S.M.Pandey: op.cit. pp.56). Thus, it is clear that absorption in employment for building labour in Delhi was faster than what it is in 'KAVAL Towns' for obvious factors explained in para - 3.18.

Table - 3.09: Duration of Employment in the present job for the Skilled, Semi-skilled and Unskilled in Kaval Towns.

(1)	(2)	(3)	(4)	(5)
Duration of Service	Skilled %	Semi-Skilled %	Unskilled %	Total %
1. Less than 3 months.	2 (0.8)	5 (2.8)	2 (0.7)	9 (1.3)
2. 3-6 months	63 (24.2)	19 (10.8)	80 (30.1)	<u>162</u> (23.0)
3. 7-12 months	91 (35.0)	87 (49.4)	112 (41.9)	<u>290</u> (41.3)
4. 1-5 years	76 (29.2)	44 (25.0)	50 (18.7)	<u>170</u> (24.2)
5. More than 5 years	2 (0.8)	21 (12.0)	23 (8.6)	<u>72</u> (10.2)
<u>Total</u>	<u>260</u> (100.00) (37.00)	<u>176</u> (100.00) (25.00)	<u>267</u> (100.00) (38.00)	<u>703</u> (100.00) (100.00)

3.20 It is interesting to find that about one-third of the sample labour had an employment for '1-5 years and more'; 41.3 percent, upto '7-12 months'; and another 23 percent; and only 1.3 percent were employed for less than 3 months. This is rather unusual in the building labour - but here it connotes

employment in a particular building trade /occupation need not always be with one and only one employer. However, sites, possible explanation can be that since, out of 703 construction/

75 percent of the sites had construction activity operated by the public sector construction agencies of the central/state/local governments - and only 25 percent of the sites were construction operations by private builders/contractors - as /the security of job was better. Yet, the presented in Table 1.01/ element of mobility was more in case of skilled and unskilled labour - the former, due to 'skill' at a higher wage-level, and the latter, due to lack of 'skill' at the same static wage-level..

Table - 3.10: Expectation of change from the present job and the inducing factors by the Sample Labour according to skills in the KAVAI Towns.

(1)	(2)	(3)	(4)	(5)
Expectations and inducing factors	Skilled	Semi-skilled	Unskilled	Total
1. Similar job with same employer	1 (0.40)	2 (1.10)	1 (0.40)	4 (0.60)
2. Better job with the same employer.	19 (7.30)	-	14 (5.20)	33 (4.70)
3. Similar job with other employer.	11 (4.20)	2 (1.10)	17 (6.40)	30 (4.30)
4. Better job with the other employer	123 (47.30)	138 (78.40)	146 (54.70)	407 (57.90)
5. Any job in any industry.	90 (34.60)	30 (17.00)	77 (28.80)	197 (28.00)
6. No response	16 (6.20)	4 (2.30)	12 (4.50)	32 (4.60)
<u>Total</u>	<u>260</u> (37.00)	<u>176</u> (25.00)	<u>267</u> (38.00)	<u>703</u> (100.00)

3.21 It is obvious from the data in Table - 3.10 that a large percentage of the sample labourers, had an expectation and choice of change from the present employer; nearly 58 percent in the aggregate, made this choice. But the proportions in case of were higher 78.4 percent, / the semi-skilled; and 54.7 %, for the unskilled - which shows that the frequency of the semi-skilled and unskilled was more, to leave the present employer - but only when 'better job was available with the 'other employer'. Again, the difference in proportions of the skilled and unskilled for change to 'better job with other employer' were not very much different which indicates certain

association between the two- because it is the skilled ones who provide for work to the unskilled; and the semi-skilled after having made some grade are psychologically anxious to change - for better inducements where they would not have a 'hang' of working under obligation with the same skilled seniors. The second choice, was also for a change, - and change to be opted was not for better - but to a new industry, which might open up new vistas for progress and higher income; in this choice the aggregate proportion was of 28 percent of the sample workers - but the proportion was higher at 34.6 % for the 'skilled' - who because of skill advantage can as well mould themselves in a better way and could earn better income in a new industrial field. Otherwise the propensity or propensities to remain with the 'same employer', or with the 'same job with other employer' or even a 'better job with the same employer' were at a low point - only 10 percent or less amongst the three strata of 'skill-level' labour could not as an obligation - but as a desirable static - status motivated them to stick - lest they might not easily gain elsewhere.

S U M M A R Y

Employment in the construction sector is bedevilled by certain aspects: (i) frequent changes in geographical locations of construction work; (ii) lack of continuity and frequent interruptions; (iii) only some key-labour, is regularly employed; (iv) mobility of builders-contractors to build at different sites; (v) wide spread in the skills - causing intricate as also elusive standards.

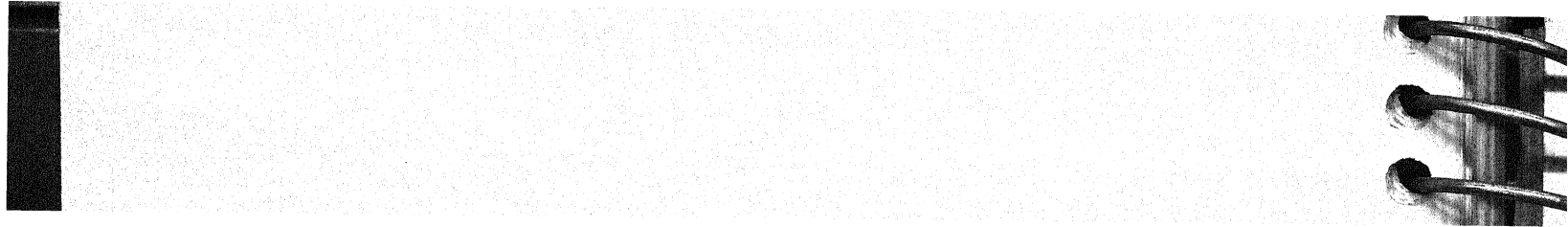
2. Proportions of construction labour declined from 2.1 %, in 1961, to 1.9%, in 1971, in India. The proportional distributions of the building labour also have differences between public and private construction agencies. Building costs proportions also vary from one agency to the other and also from one location to the other; nonetheless, broad bands of proportions in total cost for 'building materials' are 70-75 percent; 20-25 for 'labour', and 5-8 percent for 'other charges'.

3. Migration in larger KAVAIL towns, in the earlier stages of development constituted a sizeable proportion of total population, labour force, and construction labour, but after a few decades it gave place to the 'sons of the districts'.

4. It is not true fully that 'matriculates and above' educated construction labour is 'skilled'; neither it is fully true that literates are semi-skilled; nor the illiterates are unskilled.

5. Construction labour age-wise in KAVAIL towns is 96 percent formed by labour in the age range of '18-49 years and above' - and 84 percent is in age-group '18-49 years' in KAVAIL cities.

6. Jamadar/Mistri is the main plank of resources to supply 57% of construction labour followed by 'friends' (27%); and self-effort 7%, and the role of contractors, employment exchanges, and relations is insignificant - being in all only 8.5%. And sub-contracting is a common practice. Waiting period for construction employment after migration, did not exceed more than 4 weeks for 92% of the labour-a phenomenon no so rosy for educated white-collar workers. About 35% of the construction has been with the same employer/building trade for 1-5 years and more - perhaps because public sector construction agencies operated on 75% of the sample building sites.



IV. TRAINING FOR BUILDING AND CONSTRUCTION LABOUR

4.01 Building and construction man-power, unfortunately does not have a proper base for training - and whatever training is available benefits a small proportion (1-2 percent only) of the sustained/present man-power in this ^{sector.} / It is an irony that those who are trained for other industry sector, spill over to building and construction sector, because they do not get job in the industry for which they received training; such a man-power in the aggregate constituted nearly 25 percent, and in the skilled and semi-skilled strata 33 percent and 41.5 percent respectively. In addition, in the aggregate, 74 percent have had 'no training' - and the proportion of the skilled, semi-skilled and unskilled strata were 33 percent, 19 percent, and 48 percent respectively. It is surprising to find that even amongst skilled labour, two-thirds had 'no training'; and 36.2 percent of the semi-skilled also belonged to this category. (See Table 4.01). In order to uplift the efficiency levels of the man-power in the building and construction, it is important to establish, almost in all districts, the training institutes for building trade-skills to ward off entry for employment of the mis-fits and the untrained people;- even for unskilled, there should be a short training at least for a month, on stipend basis, before they take the regular job.

Table - 4.01: Training Levels - and the fields of industry - of the existing skilled, semi-skilled, and unskilled Building Labour in K.V.I.L Towns.

Skill	Traing in				Total
	Building Industry	Other than Building Industry	No Training		
Skilled	3	86 (48.60)	171	(33.00)	260
Semi-skilled	4	73 (41.20)	99	(19.10)	176
Unskilled	1	18 (10.2)	24	(47.90)	267
Total	8 % (1.1)	177 (100.00) (25.20)	248 (73.70)	(100.00)	703 (100.00)

4.02 In regard to need/urgency for 'training' to the workers (skilled, semi-skilled, and unskilled), the views and reactions, of the sample, were sought for under items 3.5 - 3.7 of the Schedule. It came out that out of 703 sample labourers, 388 evinced interest in getting training. Of the latter 388 labourers, 205 labourers (55 skilled, 51 semi-skilled, and 99 unskilled) or 52.6 percent stressed the need for training in masonry; 50 labourers (or 13.0 %), for carpentry; 39 (or 5.26 %), for blacksmithy; 23 (or 5.26 %), for 'sanitary fittings and plumbing' work; and 19 (or 5.0 %), for painting. It is interesting that the 'skilled' labour formed 78.3 percent and 63.2 percent for the building trades of 'blacksmithy' and 'painting' respectively, 'semi-skilled' labour constituted 33.3 percent; and unskilled were anxious for training in certain buildings - namely, "sanitary fittings and plumbing", 'mechanics work', carpentry and masonry representing 70%, 56.4%, 50% and 48.3 % respectively. (See Table - 4.02). Again, one gets

impressed that out of 260 skilled workers, as many as 129 workers (or almost 50 percent) have emphasized the need for 'training' in almost all the building trades' occupations - though the weights are more in favour of masonry, carpentry, blacksmithy and electrician's occupations. Out of 177 semi-skilled in the sample, 82 (or 45.56 %) have stressed the need for training; and out of 267 unskilled labourers, 36.6 percent have opined for training. Therefore, the workers representing 65.4 % of the total labourers have voted for need for 'training'.

Table - 4.02: Opinions for Training and Preferences for 'Training' in certain Building Trades by skilled, semi-skilled, and unskilled in K.V.V.L Towns.

Skill	Mas- onary	Carp- entry	Mech- anic	Elect- rician	Sani- tary fitti- ngs & plumb- ing	Black- smithy	Paint- ing	Sur- vey- ing	Total
1	2	3	4	5	6	7	8	9	10
Skilled	55	18	8	11	5	18	12	2	129 (3..7)
Semi- skilled	51	7	9	6	6	-	3	-	82 (21.0)
Unskilled	99	25	22	10	12	5	4	-	177 (45.3)
Total	205 (52.80)	50 (13.20)	39 (10.20)	27 (7.20)	23 (5.37)	23 (5.37)	19 (5.10)	2 (0.6)	388 (100.00)

4.03 There is a sizeable departure in regard to need and choice of training in certain building trades' - from the views expressed in the study referred to earlier, in regard to Delhi. What is significant is a lesser stress for carpentry and blacksmithy in Delhi study - whereas in

KAVAL analysis masonry, carpentry, mechanics and painting - receive greater emphasis - and the demand for training is spread over a wider spectrum of building trades - wherein masonry and carpentry - followed by mechanics, electricity, sanitary fittings and plumbing and blacksmithy, in that order, receive more importance.

4.04 The Apprentices Act 1961, covers building trades for imparting training. So also Industrial Training Institutes have been established widely in the country.

The IIT's utility has not been demonstrated in terms of the gainful demand, for the technicians turned out by them, in the building labour market; resultantly, even the capacity of the IIT's utilised is below (less than 60 percent) - except for wireman and D'man (Civil), as can be seen from All-India data.

Table - 4.03: Utility function of the sanctioned strength of the 'seats' in Building Trades/skills in IIT's in India (at the end of 1967).

1	2	3	4
Skills	Sanctioned of seats	Students on roll	Utility function of the use of capacity col.3/col.2
Wireman	9,408	7,117	0.76
Carpenter	5,968	2,414	0.40
Blacksmiths	4,208	1,487	0.36
D'man (Civil)	3,008	2,324	0.77
Surveyor	1,568	938	0.60
Plumber	1,136	640	0.56
Painter	640	37	0.06
Masons & Other Constructors	320	181	0.56

4.05 Some of the contractors were interviewed in Kanpur, Agra, Varanasi, Allahabad and Lucknow and they appeared to be bitter about the role, so far, played by the ITIs, in preparing building skills; they often preferred not to employ an ITI-qualified mason, carpenter, plumber, painter etc. because the ITI's trained workers had higher wage expectations and were not willing to work in bad weather - and because of their low productive efficiency vis-a-vis their wage-demands. In case of apprentices contribution to the contractors profit was lower - the latter had no control to hold on to his trainee in future, and he can join the firm of their rival contractor(s). So far as the apprentice himself is concerned, he feels that his training period is long and stipend doled out during apprentice-period is also low.

4.06 The Apprentice Adviser, as well as engineers of public sector construction agencies as also, Labour Commissioner etc. were approached and they were not very much enthusiastic about the working of the apprentice scheme. Nonetheless, they felt that the benefit accruing from the "investment + man-power" engaged in the training imparted in institutes and market value of the technician was uneconomic. There is, of late, a famine growing for

building skills - and for skilled masons in particular, because of flight of country's building skill to Middle East countries; a larger flight is from Punjab, Haryana, Rajasthan and Delhi - and the vacuum, so caused, is filled by the craftsmen from U.P. Building labour also leaves the K.V.L towns because the building activity is at a very low ebb.

4.07 In India, for the first time, in the plan strategy, the attention was given in the Second Plan for the craftsmen's training, when the number of the seats, from 10,300 on the eve of the Plan/to 19,700 (an increase by 94%) - and also it was provided to raise the period of training/ formally to be looked after by the National Council for Vocational Training - which was on the anvil to be set. It was then also realised that well-organised apprenticeship system was not in existence; and it was decided to place for training 450 apprentices in factories in the first year and raise the number to 5000 by the end of the Plan. But no specific emphasis was laid on the training of building trades/craft

4.08 The Second Plan, had one of the four objectives as 'a large expansion of employment opportunities' - and had estimated backlog of unemployed at 5.3 million (2.5 million in urban areas and 2.8 million in rural areas); and i

had estimated, a new entry in the labour force during the Plan, of 10 million. To meet the needs for employment, provision for 'additional employment in construction' alone was fixed of 2.1 million during the Plan: 0.266 million, in the construction work in 'agriculture and community development', 0.377 million; in 'irrigation and power', 0.403 million; in 'industries and minerals - including cottage and small-scale industries', 0.127 million, in 'transport and communications'; 0.0698 million, in 'social services'; and 0.234 million, in 'miscellaneous and government sector'). Perhaps, it was then felt, by the planners that, out of additional job potential determined in the Plan, nearly 25 percent will be in the construction sector - both for 'new constructions' and also for 'maintenance and repair' work. It is amusing that no estimate of employment generated in 'housing' was specifically made - though a provision of 1200 million was made just only for 'subsidised housing' - leave aside other residential constructions in the public and private sectors. Also stress was laid on the abolition of contract system in labour. (Refer to Second Plan).

4.09 On the eve of the Third Plan, one of the reiterated objective was towards increasing opportunities for gainful employment and improving living standards and working conditions of the masses' - and also to raise the level of productivity, by raising the levels of

skills and technical know-how. By the end of the Second Plan, in India, there were 166 industrial institutes with 42,000 seats - and for the Third Plan (upto its end), targets for the institutes was raised to 318 - with an additional 58,000 seats - making the training seats number to 100,000 - and outturn of 200,000 craftsmen. Actually, in the earlier plan, the target of 14,000 seats for apprenticeship programme. The over-all additional employment, that could be created during the Third Plan, was estimated at 10.53 million of which 2.3 million (or about 22%) was expected to be absorbed by the construction sector.

4.10 The Fourth Five Year Plan, had ignored the objective of 'augmenting of employment', but it did emphasize the 'raising of productivity. Actually, at the end of the Third Plan, the number of ITI's was raised to 357 - and the number of seats were raised to 116,570 - outstripping the targets of 357 and 100,000 (also refer to earlier paragraph). In spite of it, the establishment of additional ITI's were programmed for 113 new ITI's and

¹/ Refer to pages 6 and 25 of the Third Five Year Plan.

²/ *Third Five Year Plan, 1961-65*

³/ Op.cit. page 159 and 754-55. The employment norm, estimated in the Third Five Year Plan document, mention that Rs.10 million create employment to 7000 persons, in 'irrigation'; 1000 persons, in 'power'; and 1900 persons, in 'transport' (pp.754). (For each person 300 days man-year employment is assumed.)

total training seats to 100,000 - making the annual out-turn each year of 200,000 craftsmen

likely to be only about 0.7 million craftsmen). Further, for the apprenticeship training which reached level of 26,000 places - was planned to be expanded and diversified during the Fourth Plan - so as to increase the net increase (in 1970-71) three-fold (or around 75,000 places).
number of

However, it is not clear about the/ training seats specifically for the various building trades. It may be observed that for training the 'trainees', the programme of training the instructors was being done through Central Training Institutes with a sanctioned capacity of about 1900 seats - and it was proposed to raise it, by the end of Fourth Plan, to 3100 in the CTI's. Fourth Plan also mentioned (page 399) that a central legislation for regulating the conditions of work of 'construction and building workers' was under consideration by the Parliament and this was enacted in 1971.

4.11 The Fifth Plan Draft, while mentioning the objective of generating increasing employment opportunities, noted that on the eve of 1973-74, there were 357 ITI's/centres with total seats' capacity of 156,000 for 54 trades; 32 engineering trades and 22 non-engineering trades. Again, under Apprentices Act,—/ 161 trades were listed in 201

—/ The Apprentice Act as amended in 1974, provides, among other things, for the training in industry of engineering graduates, diploma holders and for the reservation of training places for candidates belonging to scheduled castes and scheduled tribes. (For a brief account of 'Apprentice System' in some countries see Appendix-4).

designated industries - with 87,000 apprentices engaged on 'stipends'. (pp.267). The Plan's thrust was for making training programmes for building construction, procurement of equipment and recruitment of instructors in all the ITIs along with re-orienting to modernisation for the level of skills requirement by the Indian economy.

4.12 The hurdles ^{long} that inhibit the value of 'apprentice training' are: (a) the gestation period between completion of one type of work, and initiating the other; (b) occasional stoppage of work - arising out of weather; and (c) bottleneck in the flow of building materials. To obviate such troubles only few cures are available. This scheme was first to be implemented by Central Construction Agencies (such as C.P.W.D., M.E.S., Railways, Post & Telegraphs Department, etc.) and also the contractors of these ^{were} agencies / also obliged to fall in line. The latter were to pay Rs.80 p.m. to the apprentice plus subsistence allowance on a change to other distant 'site of work' including with travelling allowance for attending the instructional courses ^{made} ^{contractor} - along w in the relevant trade - was / the liability of/health, safety and welfare of the apprentice. In the U.K., this problem has similar as well as little different modus - operandi; for example, about 0.25 million boys in the age-range of 15-17 years, are in paid employment, of these 95,000 are apprentices (or 32 % of 0.25 million) when the Building Apprenticeship and Training Council was set-up for Building Industry, in 1943-44; and its annual intake target was 22,000 in the following ratios of the various building trades.

Table - 4.04: Proportions of Various Trades in which Apprentices are distributed in each new annual intake.

<u>Building Trade</u>	<u>%</u>
Carpenters and Joiners	26
Painters	25
Bricklayers	21
Plumbers	9.5
Plasterers	8
Masons	2.5
Slaters and Tilers	2
Other Crafts	6
(N = 22000)	

The Council followed: (1) a five-year apprentice training; (2) apprentice agreement to be signed - by four parties (apprentice, his guardian, employer and a representative of the regional branch of the Council, and (3) maintaining a register of apprentices by the Committee at regional level.

4.13 Nonetheless, it is still a question to know whether the 'utility function' of the III's and the training seats ^{expected} is bringing the/ benefits to (i) the intended beneficiaries; (ii) to the economy, as a whole in terms of fall-out or otherwise; (iii) employment volume; and (iv) productivity in the craftsmanship - as also specifically in the 'building trades'. Or the status-quo in the 'utility function' (as explained under para 4.04 and Table 4.03) is unchanged, or gone lower - as may be referred in terms of knocking down of the 35% construction labour in the K.V.L towns during 1961-71.

S U M M A R Y

Base for training is not properly result-oriented; and whatever of training is available, it benefits a small proportion of construction labour. It is an irony that those trained for manufacturing industry, spill-over to building and construction sector in the absence of job-opportunity in manufacturing industry. Further, two-thirds of the skilled sample respondents and little over one-third of the semi-skilled did not go through any formal training.

Amongst the skilled labour 30.7 percent, 21 percent of semi-skilled, and 43.3 percent of the un-skilled offered their options for further training in their present vocations. Yet it is agonising to notice that the 'utility function' of the ITI's, in India, is low (as shown in Table - 4.03⁴); and in spite of all the facilities are growing in regard to seats in ITI's (from 10,300 seats on the eve of the Second Plan to 156,000 in the Fifth Plan) and the number of ITI's having gone upto 35%.

The Apprentice Act, as amended in 1974, is still confronting hurdles due to: (a) the long gestation period between completion of work at a building site, and the commencement of work at the other site, (b) occasional stoppage of work; and (c) bottlenecks in the timely flow of building materials at the building sites.

The steps should be taken to make the operations of the ITI's and Apprentice Act result-oriented, in order to raise 'utility function' of the ITI's and importance of Apprentice Act. Both require the will and efficiency in implementing machinery's stream-lining.

V. ECONOMIC STATUS OF THE CONSTRUCTION LABOUR
- INCOME, EXPENDITURE AND SAVINGS:

5.01 Welfare of the workers - in any profession/ occupation - to a large extent depends on: (i) the current income, (2) expenditures and their distribution, and (3) savings and their utility for augmenting production/ income, to further raise the welfare functions. Further, the monthly/yearly income itself is a function of the (i) number of days/^{hours} worked in a week, a month, or a year; (ii) daily wage-rates, and number of working days, (4) the paid holidays, and (iii) educational and productivity levels. Subsidiary income helps to raise the income-levels; such income may be from (a) over-time work, (b) no loss in the month, (c) no discount, in receiving the income, (d) income earned by other members' of the family (that is, wife or son(s) or brother(s)). Also other income may accrue, by earning rent from property, interest from assets lent/deposited, dividends from investments, honoraria/fees. In this direction questions were asked to 703 sample construction labour respondents through items 4.0 to 4.21 of the Schedule in respect of 'income'.

5.02 The data given in Table - 5.01, show distribution of skilled, semi-skilled and unskilled workers according to number of days in a month. In aggregate, 535 workers (or 76.1 percent), worked from 26-31 days in a month; 119 workers (or 16.9 percent), from 21-25 days; and 38 workers (or 5.4 percent), from 11-20 days; and 11 workers (or 1.6 percent), from 1-10 days. In essence, 654 workers (or 93 percent), worked for 21-31 days; there if their

wage-levels per day were reasonably properly fixed, it can be said that ^{an} /overwhelmingly large part of them are earning fair level of income. In addition, it can be seen from Table - 5.01 that proportions of the skilled and unskilled construction labour were almost equal, as around 91.4 % - 94.6% of them worked for 21-31 days in a month; however, it were the semi-skilled workers, who had a higher proportion (at 93.2 %) - similar to aggregative proportion.

Table - 5.01: Distribution of the skilled, semi-skilled and unskilled 703 sample construction labour in K.V.L Towns according to Number of Days Worked in a Month.

No. of Days worked	Skills	Skilled	Semi-skilled	Unskilled	Total
1 - 10		2 (0.8)	6 (3.4)	3 (1.1)	11 (1.6)
11 - 20		12 (4.6)	6 (3.4)	20 (7.5)	38 (5.4)
21 - 25		51 (19.6)	18 (10.2)	50 (18.7)	119 (16.9)
26 - 31		195 (75.0)	146 (83.0)	194 (72.7)	535 (76.1)
Total		260 (100.00)	176 (100.00)	267 (100.00)	703 (100.00)

Note: Figures within brackets indicate percentages.

5.03 Paid holidays were available to only about 120 sample labourers: 59 skilled, 12 semi-skilled, and 49 unskilled - each representing about 22.7%; 6.8%; and 18.1 % respectively - which did not decline according to level of skills - because the proportion of unskilled was larger than that of the semi-skilled. However, nearly half of 120 workers, had 1-4 holidays in a month, and the rest 'more than 4 days'. In consequence, nearly 83%, (or 583

in number) of sample workers did not have any paid holiday - which might be either 'no holiday' in a month and all had to work 30 or 31 days in a month. Probably, a skilled workers more often did not work, without having helper unskilled worker(s) - this could not be possible for a semi-skilled worker; as, latter has highest proportion of (93.2 %) with 'no-holidays'; and holidays are availed by 6.8 percent only. The intermediate role of the semi-skilled makes him suffer in more than one way.

Table - 5.02: Paid Holidays in a month distributed according to skills of the construction workers in K.V.A.L Towns:

(1)	(2)	(3)	(4)	(5)
No. of paid holi-days.	1-4 days	More than 4 days	No holiday	Total
Skills				
Skilled	(10.40) 27	(12.3) 32	(77.3) 201	(100.00) <u>260</u>
Semi-skilled	(30.40) 6	(3.40) 6	(93.20) 164	(100.00) <u>176</u>
Unskilled	(9.40) 25	(8.90) 24	(81.70) 218	(100.00) <u>267</u> (38.00)
Total	<u>58</u> (8.30)	<u>62</u> (8.80)	<u>583</u> (82.90)	<u>703</u> (100.00)

Note: Figures within brackets are percentages; however, those in Col.5 add up vertically; and in all other columns add up horizontally.

5.04 The daily rate wages received, ordinarily, are higher for the skilled and they taper down for the unskilled - through semi-skilled. However, there is one person amongst skilled workers who earns only upto Rs.4/- a day - and also 4 and 7 amongst semi-skilled and unskilled

respectively. However, in the wage group between Rs.5-7, there are 239 unskilled workers (or 89.5 percent), 14 semi-skilled (or 8%); and 22 skilled (8.5 %); in any case the large proportion make out only Rs. 5-7 per day. Among the semi-skilled workers, 124 (or 70.5 percent) earn between Rs.8-12, a day; and in this wage-group, number and proportion of amongst the skilled are 167 and 64.2 percent respectively. Nevertheless, the highest number and proportions are for the skilled - in the highest wage-group of 'More than Rs.12' per day' - at 70 and 26.9 percent; intermediate level number and proportion for the semi-skilled at 34 and 19.3 percent - and 'none' amongst the unskilled workers. In the over all situation - less than Rs.4/- wage, is constituted by 12 workers (or 1.7 percent in a sample of 703); 275 (or 39.1 percent), in the wage group Rs.5-7; 312 (or 44.4 percent), in the wage-group Rs.8-12, and 104 (or 14.8 percent) in the wage-group 'more than Rs.12'.

Table - 5.03: Daily Wage - Rate Groups, according to skills in the KAVAIL Towns.

Daily wage-rate groups	Skills			Total
	Skilled	Semi-skilled	Unskilled	
Less than Rs.4	1 (0.4)	4 (2.3)	7 (2.6)	12 (1.7)
Rs.5-7	22 (8.5)	14 (8.0)	239 (89.5)	275 (39.1)
Rs.8-12	167 (64.2)	124 (70.5)	21 (7.9)	312 (44.4)
More than Rs.12	70 (26.9)	34 (19.3)	-	104 (14.8)
<u>Total</u>	260 (100.00)	176 (100.00)	267 (100.00)	703 (100.00)
%	(37.00)	(25.00)	(38.00)	(100.00)

5.05 Overtime work is available, in a month, to about 21 workers (or 3.00 percent), out of a sample of 703 workers. The hours worked range from '1-30 hours or more' - when divided into wage-rates per hour of 'upto Rs.4', Rs.5-7, Rs.8-12, and 'more than Rs.12', the frequency comes to 5, 8, 5, and 3 respectively. Those, who worked for 1-10 hours were 12; 11-20 hours, 5; 21-30 hours, 3; and 'more than 30 hours', only 1. In any case, it is clear that overtime income was for a small number of construction workers - and that also for meagre numbers of hours - offering insignificant extra income.

Table - 5.04: Wage-Group Workers and Hours of Overtime Work attended:

Wage-Groups per day (Rs)	Hours of Overtime in a month				Total
	1-10	11-20	21-30	More than 30 hours	
Upto Rs.4	4	-	1	-	5
Rs. 5-7	4	2	2	-	8
Rs. 8-12	3	2	-	-	5
More than Rs.12	<u>12</u>	<u>5</u>	<u>3</u>	<u>1</u>	<u>21</u>

5.06 The loss to the community of construction workers, in regard to wage-income overweighs the insignificant overtime earned. The loss accrues to the workers due to (1) sickness; (2) absence due to other casual work; (3) attending of ceremonies at home; (4) attending of work relating to agricultural occupations; (5) and other miscellaneous work or hinderance. The absenteeism frequency totals to 174 (or 25 %), out of 703 sample workers - and its share according to causes is highest due to sickness, which envelopes 106 workers (or 61 percent),

out of 174 affected workers; and 56 workers (or 32 percent). The factors of 'attending ceremonies' and 'agricultural occupations' are almost negligible in causing absence from work. (See Table - 5.05).

Table - 5.05: Absenteeism according to its causes for the skilled, semi-skilled, and unskilled Construction Workers in KAVAL Towns:

Skills	Reasons/Causes					Total
	Sickness	Absence on account of other work.	Attending ceremonies	Agricultural occupations	Other miscellaneous reasons	
Skilled	42 (39.6)	23 (41.1)	6 (85.7)	1	2 (50.00)	74 (42.5)
Semi-skilled	27 (25.5)	5 (8.9)	1 (14.3)	-	1 (25.00)	34 (24.00)
Unskilled	37 (34.9)	28 (50.00)	-	-	1 (25.00)	66 (38.5)
<u>Total</u>	106 (100.00)	56 (100.00)	7 (100.00)	1 (100.00)	4 (100.00)	174 (100.00)

5.07 It is interesting that 74 (or 42.5 percent) are the skilled workers, out of total 174 absentees - and of them about 60 percent (or 42) absent on account of sickness, and 30% (or 23) absent on account of other work. Also amongst the semi-skilled absentees (numbered) 34; absence on account of sickness, are 27 workers (or 80 percent). Amongst 66 unskilled workers, 37 (or 56 percent) absent due to sickness, and another 28 (or 42.5 percent) absentees, on account of other work. The factor of absenteeism due to 'sickness' by the skilled and semi-skilled and unskilled ^{easiest} perhaps appears to be the non-genuine excuse - followed by

the reason of 'other work' which can be ^{put} / in the category of 'easier'. Nonetheless, the case of absence motivated by attending the 'ceremonies' might be genuine.

5.08 A source of supplementary income for the construction labour (particularly, the rural-migrants), is the work he can take (or takes) when he visits his village for periods of 'less than one month' to 'more than three months'. This type of phenomenon is quite common amongst the construction labour, in larger cities. They generally visit the villages, before the sowing season(s) and also little before of the reaping season(s) in June-July, October-November and April-May - for the 'rabi' and 'kharif' seasons; as these periodicities are suitable. At that time simultaneously, the skilled and unskilled construction labour characterises itself in 'short-supply' ^{in the towns} / - resulting either in a rise of the wage-levels or stoppages of work at some construction sites or arrested volume of construction activity. Out of 703 sample respondents, it appeared that 157 visited often their villages - actually this number forms about 32.5 percent of the seemingly 419 migrants (in a sample of 703 construction workers). (See Table - 5.06:

Table - 5.06: Distribution of the Occupations (while on visit to the Native Village) according to duration of stay of only 157 Migrants Construction Labour:

Occupations in villages while on visit	Duration of stay in the Native Village on Visit			Total
	Less than one month	1-3 Months	More than 3 months	
Agriculture	4	69	8	81(51.6)
Non-Agriculture	1	37	11	49(31.2)
Not applicable	3	13	11	27(17.2)
Total	<u>8</u> (5.00)	<u>119</u> (74.80)	<u>30</u> (20.20)	<u>157</u> (100.00)

5.09 It is revealing, that 95 percent (or 149 workers, out of 157 visiting workers) stayed in their native place (village), for '1-3 months or more': 74.8%, for 1-3 months, and 21.2 percent, for '3 months and more'. Only 5 percent for less than one month of the visitors, stayed in the native village, when on visit. Again, 51.6 percent of the visiting workers, took active interest and 77 (out of 81), representing 96% stayed for '1-3 months and more' in the native village. Since the construction sector is basically a non-agriculture occupation, the traits of the occupation they practised in the larger Kaval towns impelled them to contribute their and abilities; actually 49 (or 31.2 percent) out of 157, engaged in non-agricultural occupations - possibly to build a small pucca house or repair the ancestral house or build a pucca well or water drains to carry the water to the agricultural fields.

5.10 All the factors narrated, explained, discussed, and analysis of the data convey the factors which make and augment income - levels of the sample construction workers - in relation to skills (acquired while on training or while doing the job-work, paid holidays), and overtime income, revenue from agricultural land or a house in native village, or through work for a couple of months by visiting the native village and actively participating in agricultural and non-agricultural (particularly, construction operations). A picture of the monetary income earned by the sample construction workers, according to income-class groups, for the skilled, semi-skilled, and unskilled construction worker is presented in Table 5.07. The data demonstrate that the mode-group of workers (comprised of 377 workers - or 54 percent - out of 703 sample workers) has the monthly income between Rs 201-400. Other income class of Rs 151-200, holds 141 workers (or 20 percent) - followed by 78 workers (or 11 percent), in income class of Rs 101-150; 77 workers (or 11 percent), in the highest income-class of 'above Rs 400', and 30 workers (or 4 percent) in the lowest income-class of 'less than Rs 100'. In the lowest income-class representation of the unskilled is 60 percent; and in the highest income-class, skilled and semi-skilled have omnipotent hold - with the complete absence of unskilled. So also in mode income-class of Rs 201-400 of 377 construction workers, hold 178 (47.2 percent) skilled, 127 (or 33.7 percent), semi-skilled; and 72 (or 19.1 percent), unskilled. Whereas, the largest density of the unskilled (81 percent) is in income-

class of Rs 151-200. In contrast, the highest density of the skilled as also of semi-skilled is in income-class of 'above Rs 400'; nonetheless 72.2 % of the total semi-skilled are in income-class of Rs 201-400; and 68.5 % of the total skilled workers. (See Table - 5.07):

Table - 5.07: Monthly Incomes of Construction Workers in KAVAI Towns by Skill-Levels.

Skills	Monthly Income					Total
	Less than Rs 100	Rs 101-150	Rs 151-200	Rs 201-400	More than Rs 400	
Skilled	5	11(4.3)	17	178	49	260(37.00)
Semi-skilled	7	4	10	127	28	176(25.00)
Unskilled	18	63	114	72	-	267(38.00)
Total	30 (4.2)	78 (11.1)	141 (20.1)	377 (53.6)	77 (11.0)	703 (100.00)

Note: Figures within brackets indicate percentages

Households' Incomes & Consumption and Savings of Construction Labour

5.11 The construction labour's households, income distribution often determines the expenditure distribution - on different items of consumer expenditure. A cross tabulation on income and expenditure is presented in Table - 5.08, which tells that there are 27 households, in income-class of 'less than Rs 100' - but in the corresponding expenditure-class of 'less than Rs 100' holds only 8 households - and other 19 households belong to higher expenditure class; namely 5 in expenditure class of Rs 101-150; 2, in expenditure class of Rs 151-200; and 12, in expenditure-class of Rs 201-400. It thus emerges that 19 households were either having negative savings and/or incurring indebtedness in order to meet their current consumption. In income-class

Table - 5.08: Distribution of Households' Incomes and Expenditure in KAVAI Towns for Construction Labour:

Distri- bution of House- holds Expendi- ture.	I	II	III	IV	V	Total
	Less than Rs 100	Rs 101-150	Rs 151-200	Rs 201-400	More than Rs 400	
Distri- bution of Households' Income.						
(i) Less than Rs 100 %	8(29.6)	5(18.5)	2(7.4)	12(44.5)	-	27(100.00) (3.8)
(ii) Rs 101-150	7(9.9)	49(69.0)	9(12.7)	5(7.0)	1(1.4)	71(100.00) (10.0)
(iii) Rs 151-200	-	15(10.9)	67(48.9)	55(40.2)	-	137(100.00) (19.6)
(iv) 201-400	1	3(0.8)	29(7.4)	354(90.0)	6(1.5)	393(100.00) (56.0)
(v) More than Rs 400	-	-	-	65(86.6)	10(13.4)	75(100.00) (10.6)
<u>Total</u>	<u>16(100.00)</u> (2.3)	<u>72(100.0)</u> (10.2)	<u>107(100.0)</u> (15.2)	<u>491</u> (69.9)	<u>17</u> (2.4)	<u>703</u> (100.00)

Note: Figures within brackets show percentages distributions

of Rs 101-150, there are 71 households distributed into all the five expenditure classes; in the first expenditure class, 7 households; in the second, 49 households; in the third, 9 households; in the fourth, 5 households; and in the fifth, 1 household. It flows therefore that 7 households were 'savers' in first expenditure class, and possibly somewhat in second expenditure-class; whereas 9 households, in third-expenditure class, 5, in the fourth, and 1, in the fifth are 'dis-savers' or borrowers of loans. Further, in the income-

class (iii) of Rs 151-200, the frequency is of 137 households - held by three expenditure classes - respectively 15 households, in second expenditure class; 67, in third expenditure class; and 55, in fourth expenditure class - thus it reveals that 15 households were savers in second; and 67, somewhat possibly in third expenditure class, but 55 households, in fourth expenditure were negative savers or borrowers of debts. In the income-class (iv) of Rs 201-400, the households are 393 - distributed in second, third, third and fourth expenditure class holding 3, 29, 354 and 6 households/- which establishes $3 + 29 = 32$ households were savers, and 354 only somewhat - but 6 were negative savers or borrowers. In the income class (v) of 'more than Rs 400' the households are 75: 65, in expenditure class IV and 10, in expenditure class V - the former being savers, and 5 somewhat savers/or borrowers.

5.12 From the foregoing paragraphs at least 99 households are definite dis-savers/borrowers - and out of corresponding (or same) or diagonal income and expenditure classes - there are 488 - of them, some could be savers and some dis-savers/borrowers. But chances are that all of them may be both savers as well as borrowers - because of usual low-incomes and high dependency ratios. It is equally possible that lower income-classes might still be incurring debts to meet other capital expenditures in paying the old debts or interest on them and the 'guesstimates' from the above analyses might correspond or not. Data in Table 5.09 below present information in regard to savings made and debts incurred.

Table 5.09: Savings made and Debits incurred
by the Construction Labour Households
in KAVAIL Towns.

Households' Income - Classes (Rs)	Savings (in Rupees)						Total
	Nil	Upto 10	11-20	21-50	51-100	Above 100	
Savings less than 100	14	-	7	3	3	-	27 (3.8)
101-150	61	2	3	4	1	-	71 (10.1)
151-200	64	3	33	34	3	-	137 (19.5)
201-400	94	6	96	154	39	4	393 (55.9)
Above 400	2	-	1	38	29	5	75 (10.7)
<u>Total</u>	<u>235</u> (33.4)	<u>11</u> (1.6)	<u>140</u> (19.9)	<u>233</u> (33.1)	<u>75</u> (10.5)	<u>9</u> (1.3)	<u>703</u> (100.00) (100.00)
Debts less than 100	24	-	4	1	1	-	27
101-150	63	-	2	2	1	3	71
151-200	128	3	2	1	2	1	137
201-400	38	2	1	4	4	1	393
Above 400	74	-	-	-	1	-	75
<u>Total</u>	<u>667</u> (95.3)	<u>5</u> (0.7)	<u>9</u> (1.9)	<u>8</u> (1.1)	<u>9</u> (1.1)	<u>5</u> (0.7)	<u>703</u> (100.00) (100.00)

5.13 Above Table demonstrates that 235 households (or 33.6%) did not make any savings; and 11 households (or 1.6 percent) saved 'upto Rs 10' in a month; 75 households (or 10.7%), Rs 51-100; and 9 households (or 1.3%), above Rs 100. Largest number of savers', that is, 233 with the savings of Rs 21-50 - followed by 140 having savings capacity of Rs 11-20. In brief / 373 households, saved Rs 11-50 per month - and 75 households, saved Rs 51-100; and only 9 households, saved over Rs 100 per

month. Largest number of savers were from households in income class of Rs 201-400, that is, 299 - followed by 73 each in income-classes of Rs 151-200 and 'more than Rs 400'. So also largest number of non-savers (94) were also in income-class of Rs 281-400 - followed by 64 in income-class of Rs 151-200 and 61 in income-class of Rs 101-150.

5.14 In harmony with two-thirds of the sample construction workers having a savings potentialities, sizeable workers^{were} neither borrowing nor dis-saving. This is clear since 667 households (or 95.4%) did not borrow in the month preceding the survey in KAVAL towns - and surprisingly more than half (that is 381 or nearly 60 percent out of 667) belonged to income-class of Rs 201-400 - followed by 128 (or 21%) from income-class of Rs 151-200. Borrowing was indulged by 36 workers (or 5%); 5, borrowing upto Rs 10; 9, between Rs 11-20; 8, between Rs 21-50; 9, below Rs 51-100; and 5, between over Rs 100. Thus, the frequency or intensity of borrowing was not disappointing - and savings were more or less in tune with average savings capacity of different income-classes of the households in the country (or even better because this related to urban labour who got employment in the face of shrinkage/flight in the size and proportion of construction labour, from KAVAL towns during 1961-71 and low-level of current construction/building activity in this period).

5.15 The debts taken by the construction labour were prompted due to need for (i) sustenance; (ii) medical expenses-during illness; (iii) deaths in the family; (iv) marriage in the family; (v) litigation expenses;

(vi) purchase of property; (vii) remittances to relations/dependents, etc. The debts were taken by 148 workers (or 21%) in the month preceding the survey, and the largest number of loans were 91 (or 60%) and were negotiated to meet the needs of day-to-day sustenance; these 60% (or 13% of 703 sample workers) can be regarded as below poverty-line workers/households - followed by needs of loans for meeting death expenses and medical expenses - for 27 (or 18%) and 10 (or 7%) of total loanee workers' households.

5.15 Total accumulated savings amongst the sample construction workers in KAVAI towns ranged from 'less than Rs 100 to more than Rs 1000'. However, 191 households of the workers (or 27.1 % of 706 sample) had 'no savings' and of the remaining maximum number of households was 234 (or 33.3% of the total sample) in the 'cumulative savings class' of Rs 101-500 - followed by 161 workers (or 22.9%) in the cumulative savings class of Rs 501-1000; and 80 (or 11.4%) in the cumulative savings class of 'Rs 1000 and above'. In comparison, with the slum and squatter settlements! dwellers, in Kanpur City, the 'accumulated savings' of the construction labour households situation is indeed little better in one sense; for example, the percentage of non-savers was 44.6% in slum and squatter settlements vis-a-vis 27% for construction labour - however, some of the slum and * accumulated savings, were '327 out of a sample of 1000' - forming 32.7 percent - who had savings 'above 1001- Rs 5000 and above as compared to only 11.4 % for construction

*families
which has

workers^{1/} having accumulated savings of 'Rs 1000 and above' (Refer to: 'Slums and Squatter Settlements - in An Indian Million (+)City - Policies, Programmes and Perspectives" . - by V. Jagannadham and C.H.Palvia - Table 6.13, page 174 - 1977).

Table - 5.10 : Average Monthly Household Expenditure Pattern and Percentages on different items for construction labour in KAVAL Towns.

Items	Total house- hold expend- iture. (Rs)	Average monthly expenditure (Rs)	Percentage Distribution (%)
1. Food	83,759	119.15	46.79
2. Fuel-light	7,619	10.84	4.26
3. Clothing	15,570	22.15	8.70
4. Housing	16,335	23.24	9.13
5. Education	3,921	5.58	2.19
6. Liquor	4,510	6.42	2.52
7. Health & Medicine	9,442	13.43	5.28
8. Amusement	3,668	5.22	2.05
9. Conveyance	5,313	7.58	2.98
10. Remittance	6,555	9.32	3.66
11. Others	2,28,982	31.70	12.44
Total	1,78,982	254.62	100.00

Note: These data are, as tabulated on the Hollerith Sheets, at the Planning Commission's Computer Centre.

1/ Construction Labour in Slum and Squatter Settlements of Kanpur constituted 4.9% of the total labour.

5.16 The total household expenditure of 703 sample construction workers, for the month preceding the Survey, was Rs 178,982: on food, Rs 83,759 (or 46.8%); on fuel and light, Rs 7,619 (or 4.3 %); on clothing, Rs 15,570 (or 8.7%); on housing, Rs 16,335 (or 9.1%) on education, Rs 3,921 (or 2.2%); on liquor, Rs 4,510 (or 2.5%); on health and medicine Rs 7,442 (or 5.3%); on amusement, Rs 3,668 (or 2.1%); on conveyance, Rs 5,313 (or 3.0%); on remittances, Rs 6,555 (or 3.7%); and on other items, Rs 22,290 (or 12.4%). Thus the average household expenditure of the construction workers, per month was Rs 254.62 - distributed in the same proportions, for various items listed for total expenditure. (See Table - 5.10). If 'food' is clubbed together with 'liquor and remittances (for dependents)', the proportion of "food expenditure - including remittances made to dependents for sustenance expenses" will move upwards to about 53 % - which would be nearer with the larger towns' consumption pattern.

S U M M A R Y

welfare of workers depends on income, expenditure, their distributions, savings, number of days/months/hours worked in a year, wage-rates, education and productivity-levels, subsidiary incomes in the form of over-time allowances and other dynamic allowances (such as house rent, dearness, city compensatory allowances), income earned by the family as a whole etc.

Working period was ordinarily alright for a majority of (93%) workers who worked for 21-31 days in a month. However, there were no paid holidays for about 83% of the workers. Wage rate for a large number of workers (83%) ranged between Rs 5-12 a day; and over-time work was minimal. Nonetheless, absenteeism due to sickness, other work, ceremonies etc. plagued 25% of the sample workers - in which the share of skilled was highest.

On visit to native villages, the migrant construction workers were 50% almost - and 51.6% of them in agricultural pursuits and 31.2% in non-agricultural pursuits and about 17.2 % did not do any work. This gave the/workers a supplementary income. active

Mode number of workers earned Rs 201-400 p.m. - constituting 53.6% of the sample - followed by Rs 151-200 p.m. who were 20.1 percent and in income-classes of 'Rs 101-150' and 'more than Rs 400' p.m. each represented nearly 11 percent. Amongst the households also in the income-class and expenditure-group of Rs 201-400, respectively were 56.0 and 70 percent. Large number of savers, again were in income-class of Rs 201-400 - and so also they were prominent - but their number was nominal only. Total of 'accumulated savings' was almost nil for 27% of the sample and others who had such savings their range was largely upto 'Rs 1000'; the group representing the highest accumulated savings of 'Rs 201-1000 and above' was only 80 (or 11.4%).

VI. ENVIRONMENT OF WORKING AND LIVING CONDITIONS
FOR CONSTRUCTION LABOUR:

work-force
size(s) at
the sites
of various
construction
agencies:

6.01 Average work-force^{1/} of construction workers in many of the building sites ranged from 21-50 or even '50 and more' in the public sector construction agencies, at a site, in the KAVAL towns. For example, out of 33 CPWD, 19 sites (or 57.6 percent) employed a labour force of 'more than 50 workers'^{in a day}, and 13 sites (or 39.4 percent) engaged, 21-50 labourers - both type of sites adding to 97 percent ^{out of} of the sites. In case of State PWD's /133 building sites, 93 sites (or 70 percent) each provided work to 21-50 workers; and 26 sites (or 21.8 percent) each gave work to 11-20 workers - both types of sites making a total proportion of about 92 percent. In case of, Kanpur Municipal Corporation, out of 138 building sites, 90 (or 65.2 percent) sites each provided employment to 21-50 workers; and 26 sites (or 21.8 percent) each gave work to 11-20 workers - both types of sites aggregating to 87% of the sites. In respect of Kanpur Development Authority, out of 65 building sites, at 7 (or 10.7 percent) sites, each employed 'more than 50 workers'; 52 (or 1.80 percent) sites, each engaged 21-50 workers; both together embracing about 91 percent of the sites. Regarding Military Engineering Services (M.E.S.), out of 93 building sites, 82 (or 88.2 percent) each gave

/total

1/ Int the Model Rules, CPWD had defined 'work place' (and large work place') as having, on an average, '500 or more workers' employed in connection with construction work.

employment to 'more than 50' workers; and another 2 projects (or 2.2 percent) each employed 21-50 workers - both jointly reaching a share of more than 90 percent. However, in case of Railways, because of extensive sprawl, there was no building site employing 'more than 50' workers; nonetheless, out of 67 projects, there were 40 building sites (or 59.7 percent) of which each one employed a labour force of 21-50 workers; and another 11 (or 16.4 percent) sites, each engaged 11-20 labourers - both making an aggregate share of 76 percent. (See Table - 6.01).

6.02 In contrast to public sector construction agencies, the private builders/contractors, out of 174 building projects, largest number of sites were 67 (or 38.5 percent) each employing only 1-10 workers; and another 53 sites (or 30.5 percent) each employed 11-20 workers - thus both the proportions aggregated to 69 percent ; and those sites having employment of 21-50 persons were 43 only (or 24.7 percent) along with 11 other sites (or 6.3 percent) which employed 'more than 50' persons. (See Table - 6.01).

Table - 6.01: Average Work Force Employed at Building Sites by the Public Sector Construction Agencies and Private Builders/Contractors in KAVAIL Towns:

Average No. of workers at sites.	Construction Agencies - both of Public and Private Sector							Total
	Public Sector					Private Builders		
	CPWD	State PWD	Kanpur Municipal Corporation.	Kanpur Devel- opment Author- ity.	M.E.S. Railways			
1-10	1 (3.0)	12 (9.0)	19 (13.8)	3 (4.6)	9 (9.6)	16 (23.9)	67 (38.5)	<u>127</u>
11-20	-	26 (21.8)	26 (18.8)	3 (4.6)	-	11 (16.4)	53 (30.5)	<u>119</u>
21-50	13 (39.4)	93 (69.9)	90 (65.2)	52 (80.00)	2 (2.2)	40 (59.7)	43 (24.7)	<u>333</u>
More than 50	19 (57.6)	2 (1.5)	3 (2.2)	7 (10.8)	82 (88.2)	-	11 (6.3)	<u>124</u>
<u>Total</u>	<u>33</u> (100.00)	<u>133</u> (100.00)	<u>138</u> (100.00)	<u>65</u> (100.00)	<u>93</u> (100.00)	<u>67</u> (100.00)	<u>174</u> (100.00)	<u>703</u> (100.00)

Note: Figures within brackets show proportions.

6.03 It follows, from the analyses, that public sector had construction at a point of time, a larger number of building workers at a 'site' - being 'more than 50' workers - whereas private builders/contractors created in a major way an employment capacity for 1-10 persons and/or 11-20 persons. The highest proportion of the sites- giving employment to 'more than 50 workers' was by M.E.S., at 66 percent - followed by CPWD, 57.6 percent. In giving employment to 21-50 workers, Kanpur Development Authority gave a lead in 80 percent of its sites; followed by State P.W.D., in 70 percent of its

sites; Kanpur Municipal Corporation, in case of 65.2 percent of its sites; and Railways, in regard to about 60 percent of its building sites. (See Table 6.01).

6.04 Since most of the public sector construction agencies, have to employ a large number of construction workers at the building sites, it is important that agencies 'must' provide proper working conditions at the sites to keep the workers highly satisfied; this operation is doubly blessed, because the employing agency would also benefit through rise in productivity of the workers and their cost per unit/operation will be also less. This in no absolves, the responsibility of the private builders/contractors to provide good working conditions even on sites where less than 11 persons work - leave aside the greater responsibility in cases of private building sites having employment of 11-20 workers, 21-50 workers 'and more than 50 workers'. Above all, out of 703 building sites, 457 (or 65.3 percent) sites employ 21-50 and 'more than 50' workers on each of the sites; and working conditions have to be congenial.

6.04 A sizeable proportion (57 %, in our sample) of the building labour is drawn from rural origins; this group is prone to keep with himself in some way, family members^{2/} as far as possible. Apart from the element of bigger-rise of the employed persons at public sector construction sites,

^{2/} In the KAVAI sample, however, only 4.5 percent of the workers had their family members at the work-site (or near it) - and out of this the major share (about 60 percent) belonged to the age-group of children belonged to 19-35 years, who were also employed at the site or elsewhere in the same town.

the question of providing of conveniences, at the sites of near the sites, for the family members also demands consideration. Further, as the building sites may be at favourable as well as unfavourable situations (in terms of transport facilities or their absence, water-supply and weather), it is essential to organise all the conveniences and facilities.^{3/} But it is difficult for any of the short or intermediate life assets such as 'dwellings' to be put at sites by the construction agency as it turns out a highly uneconomic - (unless a fleet of 'mobile houses' are kept by the employer - agency - which in any case is possible for big-sized public sector construction agencies in India). Conventions of the International Labour Organisation have also emphasized the urgency for providing the essential facilities at building sites by the employers for the welfare of the workers and their family members. According to the established 'Model Rules'^{3/} of the Central Public Works Department (of the Government of India) the contractors are required to honour the rules for providing facilities to labour at sites.

Working
Conditions

6.05 The data thrown out, by the KAVAI towns as a part of the Survey, provide side-light on the issue of facilities at building sites. It appears that 'bathing facilities' are provided, in the aggregate, in case of about 409 sites (or 58.2 percent); but the highest percentage of 87.7% building sites of Kanpur Municipal Corporation provided to labourers, this facility - followed by 82.7 percent of the /labourers at

^{3/} See Appendix - B for Model Rules for Contractors in regard to Facilities for Building Labour by CPWD - A Brief Note.

contractors' sites; 52.3 percent, on Kanpur Development Authority's sites; 41.8 percent, on the Railways' sites; and only 3 percent, on C.P.W.D. sites; and 'none', on M.E.S. sites. Next in observation, is the facility of a 'canteens or tea-shop', which in the aggregate, were provided on 183 sites (or 26 percent). In this facility, M.E.S. led at 66.6 percent, of its sites - followed by 47.7 percent, on Kanpur Development Authority's sites; 37.4 percent, on Railways' sites; 25.3 percent, on private sites; 12.1 percent on CPWD sites; 7 percent, on Kanpur Municipal Corporation sites; and 4.5 percent, on State P.W.D. sites. In all, between, 6-8 percent of the building sites had facilities of 'free-house' (7.7%) - more importantly in CPWD, MES; the sites, for 6.7 percent of latrines; and insignificantly at '1 percent of the sites, or less' for nursing or creches for children of the labourer and medical facilities. (See Table - 6.02).

Table - 6.02: Provision of Essential Facilities on Building Sites by Different Construction Agencies:

Facilities	Construction Agencies							Total
	CPWD	State PWD	K.M.P.	K.D.A.	Rlys.	MES	Private	
1. Free house	9 (27.3)	9 (6.8)	2 (1.4)	-	-	20 (21.5)	14 (8.0)	54 (7.7)
2. Canteen/Tea shop	4 (12.1)	6 (4.5)	11 (7.0)	31 (97.7)	25 (37.4)	62 (66.6)	44 (25.3)	183 (26.0)
3. Nursing for children/creches.	-	-	-	-	9 (13.4)	-	-	9 (1.3)
4. Bathing	1 (3.0)	110 (82.7)	121 (87.7)	34 (52.3)	28 (41.8)	-	115 (66.1)	409 (58.2)
5. Latrine	19 (57.6)	8 (6.1)	4 (2.9)	-	4 (6.0)	11 (11.8)	1 (0.6)	47 (6.7)
6. Medical Treatment	-	-	-	-	1 (1.5)	-	-	1 (0.1)
7. Total	33 (100.00)	133 (100.00)	138 (100.00)	65 (100.00)	67 (100.00)	93 (100.00)	174 (100.00)	703 (100.0)

Note: Figures within brackets indicate proportions.

Model Rules,
C.P.W.D.
and other
rules for
facilities by
contractors

6.06 In brief, C.P.W.D. having issued 'Model Rules' as also 'Clauses Regarding Working and Living Conditions - as conditions' of Contract of C.P.W.D.', and 'C.P.W.D. Code', unfortunately, in comparison to other construction agencies - of the public and private sectors in KAVAL towns' survey data - does not come out, for it, bright operational results. It is all the three State and Local authorities - M.E.S. and Railways, which have a better record (these, however, also do not give a fulfillment of all the essential services that have been expected from them). Further, even the Private Sector shows a better image. The earlier analyses of Simla-based Labour Bureau and their observations, in 1954,^{4/} are no less true now also; and these can be quoted; "..... work-charged men and contractors' labourers are concerned - and these constitute majority of the total number of workers employed directly and indirectly under CPWD - the government are in the company of some of the worst employers in the country" .. (pp.3)....."the various rules and regulations relating to labour in the building and construction industry are observed more in their breach than in their compliance". (pp.52). These views were confirmed and further re-inforced by the observations made by the National Commission on

4/ Labour conditions in the Building and Construction Industry in India (Labour Bureau, 1954). However, it is creditable that in respect of 'hours of work' in a day, generally were for 8 hours for 98.2% of the sample labourers in KAVAL towns' survey and only 1.8% of the labour, some worked for 'less than 8 hours' and some worked for 'more than 8 hours'; and no deductions made by contractor/Jamadar-Mistri/house-pwner, did not exceed 10% of the wages for 1.7% of the workers, and in case of 98.3% 'no deduction' was the practice.

Labour, in 1968 in their "Report of the Study Group for the Construction Industry" - and ^{earlier} / by the Government of India, Committee on Labour Welfare, in 1963.

6.07 It was noted in Chapter - V para - 5.15 that the 'expenditure on conveyance' was about ^{3 percent} / for the average builders' household - which eats up an important share from the family budget; perhaps it is urgent to do something in this regard - because of the shifting character of the building site for the construction labour, irrespective of the type of construction agency. In the provision of minimum wages, the transport/- conveyance charges should be neutralized by providing transport allowance, over and above to the minimum wage; since if the labour (and sometimes his wife and children along) ^{5/} walks a long distance to his work-site, he is already tired to some extent, and further gets over-tired on his return journey. Cumulatively both the trips, indirectly put the employer to a loss - because the productive efficiency available to the employer from the labour is already corroded to a great extent. However, in the KAVAL towns survey, it came out that only about 17.5 percent of the same labourers had to walk or cycle for more than 3 kilo-metres; and 51 percent, 1-3 k.m.; and 31.6 % less than 1 k.m. Therefore, long distance travel allowance, if given will not be a burden on the employer.

5/ In the KAVAL towns present Survey it emerged that 15.5% of the labourer's children accompany the mother, at the work-site; and children of 33.8 percent of the labour also work at the work-site. The children are in the age-group of 'below 14 years' (1.4%); '14-18 years' (1.8%); 19-35 years, (7.5%); and 36-50 years (0.3%); they numbered 60 (or 8.6%) and belonged to the sample labourers group.

6.08 Earlier, it has been analysed that in KAVAI towns 34.4 % of the skilled labourers were 'illiterate', - though the proportion of the illiterate was higher amongst the semi-skilled, and unskilled labourers - at 48.9% and 51.3%. Hence, it is not true that skilled labour is always educated and/or literate; nor it is so that semi-skilled or unskilled form a crowd of illiterates - and few of them literates. In contrast, a view is well-established in developed and developing countries (including India) that by and large skilled building workers have a 'several years of formal education, better informed, the majority of them belong to upper castes',^{6/} and this stands challenged in our analysis.

6.09 isfaction The healthy culture of good working conditions - apart from essential facilities of housing, canteen/tea-shop, bathing, sanitary, conveyance, and medical facilities - is psychologically related to 'good' relations with employer/jamadar/Mistri - and job-satisfaction. In this regard, it was found that 89 percent, of the 703 respondent building workers, were satisfied with 'good' relationship with the employer; but 1.8 percent, had 'bad' relations, with Jamadar; and 9.1 percent, had 'indifferent' relations with 'Mistri'. So also 615 workers (or 87.5 percent), of the 703 respondents workers had 'satisfaction' in their jobs; but ^{insignificantly} 42 (or 6 percent) workers felt that their jobs were 'not satisfactory'; whereas 46 (or 6.5 percent) had indifferent attitude about their job was either

6/ C.K.Johri and S.M.Pandey: Employment in the Building Industry - 1972 (page 86). (Shri Ram Centre for Industrial Relations and Human Resources, New Delhi).

'satisfactory' or 'not satisfactory'.

Trade
Unionism

6.10 To be a member of an organisation which strengthens the bargaining power of the labourers, as well as which helps in enhancing their social-status, wage-levels etc. injects a feeling of 'confidence' vis-a-vis a 'breakdown of confidence' to survive in the battle with competitive/exploiting, fellow-workers and employers. But because of mobility in the movements of the construction labour, and shifting works' sites discourages enthusiasm to be a member of the trade unions. Resultantly, Survey data suggest that only 6.8 percent of 703 sample respondents were the members of the trade unions - and the remaining 93.2% were non-members. Accordingly, unionism was not an important factor in terms of haggling for working conditions. (See Table - 6.03).

semi-skilled
6.11 It were 20/workers (or 41.7%), out of 48 workers who were the members of the trade unions; 17 workers (or 35.4 %), from skilled group ; and 11 (or 22.1%) from the unskilled group; incidently it also shows that 'semi-skilled' were more conscious for their rights (or they needed to be more militant). The motivating reasons to join trade unions in the order of importance, were: redress of grievances, for 64.6%, of the union-members; for wage-rise, 18.8%; workers' unity and solidarity, 10.4%, etc. (See Table - 6.03).

Table - 6.03: Reasons for Joining or Not Joining Trade Unions by the respective Construction Workers in KAVAIL Towns.

Skills	Reasons for joining trade-unions				Reasons for not joining trade unions							Sub-Total	Grand Total
	Wage rise	Redressing Grievances	Work-ers Solidarity	Others	Sub-total	No faith in leaders	No need to join	No one asked for joining.	No knowledge of any union sites.	Temporary job & shif-ting	Sub-Total		
1	2	3	4	5	6	7	8	9	10	11	12	13	
Skilled	3	12	2	-	17	1	23	44	9	166	243	260 (37.00)	
Semi-skilled	4	12	2	2	20	3	2	-	1	150	156	176 (25.00)	
Unskilled	2	7	1	1	11	9	32	28	14	173	256	267 (38.00)	
Total	9 (18.9)	31 (64.6)	5 (10.4)	3 (6.2)	48 (100.00)	13 (2.0)	57 (8.7)	72 (11.00)	24 (3.7)	489 (74.6)	655 (100.00)	703	

See Column - 12 of Table - 6.03.

6.12 In any organised system of employment in the public sector construction agencies or in the private sector, the employment is regulated by governmental codes, rules, procedures, Minimum Wages Act and Workmen's Compensation Act, etc., ^{yet} it is possible rough weather might develop in employer-employee relations. However, to smoothen the situation in the state of confrontation, it is essential sooner or later, to settle the issues by the management and Labour. The possible modus-operandi to reach agreements between the two parties (that is, between management and labour) can be: (i) negotiation; (ii) voluntary arbitration; (iii) strike, and (iv) other method(s). It is gratifying, that in the construction industry (as compared, to manufacturing industry) the method of modus-operandi, that is liked by two-thirds of the sample respondents, is that of negotiation - followed by one-eighth of the workers liking, 'of strike, by about one-twentieth, of voluntary arbitration; and other one-hundredth, relied on other methods. And one-seventh, did not respond. In their choice, the method of negotiation is also motivated by the absence of permanent and regular employment and occasional shifting to the moving building sites. (See Table - 6.04).

6.13 However, the semi-skilled, appear to be more militant - as compared to 'skilled' and 'unskilled' as nearly 35-37% of 'skilled' and 'unskilled' were in favour of 'negotiations' and semi-skilled, were only 28% and their proportion, amongst 89 'strike-prone' formed 40.5% - as compared to only 30 percent of the 'skilled', and the

unskilled. Again, the semi-skilled, amongst the non-respondents, out of a total of 174 semi-skilled workers, were only 5 or 2.8% - whereas, the skilled and unskilled formed their non-respondents', proportion at 16.2 percent and 19.1 percent respectively. (See Table 6.04).

Table - 6.04: Choice of Settlement Methods between the Management and Labour in the Construction Industry - according to skilled, semi-skilled, and unskilled workers:

1	2	3	4	5	6	7
Skill	Choice of Methods of Settlement in Management-Labour Dispute					
	Nego- tiation	Strike	Volunt- ary Arb- itration	Other Methods	Non- response	Total
Skilled	% (63.4) 165	(10.00) 26	(8.1) 21	(2.3) 6	(16.2) 42	(100.00) 260
Semi-skilled	% (35.2) (74.3) 130	(29.2) (20.4) 36	(53.8) (1.7) 3	(75.0) (0.6) 1	(42.9) (2.8) 5	(37.00) (100.00) 176
Unskilled	% (27.9) (64.8) 173	(40.5) (10.0) 27	(7.7) (5.6) 15	(12.5) (0.6) 1	(19.1) (19.0) 51	(25.00) (100.00) 267
Total	% (36.9) (66.7) 469 (100.00)	(30.3) (12.7) 89 (100.00)	(38.5) (5.5) 39 (100.00)	(12.5) (1.1) 8 (100.00)	(52.0) (14.0) 98 (100.00)	(38.00) (100.00) 703 (100.00)

Note: Figures within the brackets indicate proportions above the absolute numbers add the total horizontally; and those below the absolute numbers add up vertically.

6.14 The degree of militancy and political consciousness amongst the 'semi-skilled' is sizeably upwards - as 91.3 percent, of them, voted in the last Assembly Election in U.P., in June 1977; whereas at the same Election the proportion of voters from the 'skilled' and 'unskilled' were respectively 77.4 percent and 75.3 percent. This^{is} also to 'militancy' also as 40.5 percent of the total semi-skilled indicated their choice of using the 'weapon of strikes' as against

29.2 percent and 30 percent of skilled and unskilled respondents opting for this weapon. (See Table - 6.05):

Table - 6.05: Votes cast or not by the KAVAL Towns Skilled, Semi-skilled and Unskilled Construction Workers, in June-1977 Assembly Election, in Uttar Pradesh.

1	2	3	4
Skills	Voted or not		
	Yes	No	Total
	%	%	%
Skilled	202 (35.9)	58 (41.1)	<u>260</u> (37.0)
%	(77.4)	(22.6)	(100.00)
Semi-Skilled	159 (28.3)	17 (12.1)	<u>176</u> (25.0)
%	(91.3)	(9.7)	(100.00)
Unskilled	201 (35.8)	66 (46.8)	<u>267</u> (38.00)
%	(75.3)	(24.7)	(100.00)
Total	<u>562</u> (100.00)	<u>141</u> (100.00)	<u>703</u> (100.00)
%	(80.00)	(20.00)	(100.00)

Note: Figures within brackets show 'percentages vertically and horizontally'.

6.15 Again, according to party affiliations/membership, it is only 201 (or 29% only) who are members of political parties. Out of 201 (27.8%) workers, 29 were with Communist Party of India (CPI) and Communist Party of India - Marxist (CPI-M), 13 members (or 47%) were semi-skilled; and the skilled and unskilled, 34 percent and 20 percent respectively. The 'semi-skilled', were more radical in respecting the democratic values (as conspicuously championed by Janata Party) than those operationally holding the authoritative attitude as that of the Congress during the Emergency - since nearly 20.5 percent of the semi-skilled, skilled, unskilled voted for Janata in the Assembly Election, (almost identically) - but the vote percentage was lowest for Congress by 'semi-skilled' at 2.3 percent - and 4.2 percent and 2.6 percent by the 'skilled' and unskilled respectively. (See Table - 6.06.)

Table - 6.06: Membership of Political Parties by the Construction Labour - according to skilled, semi-skilled and unskilled workers in KAVAI Towns.

Skills	Membership or not of Political Parties						Co-7-6	
	Congress	Janata	C.P.I.	C.P.I.-M	No. Member of Political Party	Total	Total of Membership of Political Parties	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
Skilled	%	(4.2)	(20.0)	(2.7)	(1.2)	(71.9)	(100.00)	
	11	52	7	3	187	260	23	
		(50.8)	(35.9)	(31.8)	(42.9)	(37.3)	(37.00)	
Semi-skilled	%	(2.3)	(20.5)	(5.7)	(1.7)	(69.9)	(100.00)	
	4	36	10	3	123	176	53	
		(18.2)	(24.2)	(45.5)	(42.9)	(24.5)	(25.00)	
Unskilled	%	(2.6)	(22.8)	(1.9)	(0.4)	(71.9)	(100.00)	
	7	62	5	1	192	267	75	
		(31.8)	(40.9)	(22.7)	(14.2)	(38.2)	(38.00)	
Total	%	(3.2)	(21.4)	(2.2)	(1.2)	(72.2)	(100.00)	(27.8)
	<u>22</u>	<u>150</u>	<u>22</u>	<u>7</u>	<u>502</u>	<u>703</u>	<u>201</u>	
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)		

Note: Figures within brackets are proportions - they add up to 100 horizontally - and also vertically for the proportion below the absolute figures.

6.16 The detailed data of all the KAVAL Towns in regarding 'housing and attendant housing facilities' are readily available; however, quite many data are available about slum and squatter settlements and their inhabitants, in Kanpur city. Only 14.8 percent of the slum and squatter households - out of about 100,000 holds a population of over 500,000 of 1.5 million total population of Kanpur city (in 1976) - had 'pucca' houses - with average area of 'less than 20 sq.m.' for a household for 56.3 percent of the total households. (See Table 6.07):

Table 6.07: 'Pucca' or 'Kutchra' Materials of Floors, Walls and Roofs of Construction Labour in KAVAL Towns:

Skills	Pucca		Kutchra		Pucca		Kutchra	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Skilled	165	95	185	75	140	120		
%	(63.00)	(37.00)	(70.8)	(29.2)	(53.8)	(46.2)		
Semi-skilled	142	34	143	33	143	33		
%	(80.7)	(19.3)	(81.2)	(18.8)	(81.2)	(18.8)		
Unskilled	97	170	108	159	100	167		
%	(36.3)	(63.7)	(40.4)	(59.6)	(37.5)	(62.5)		
<u>Total</u>	404	299	436	267	383	320		
%	(57.5)	(42.5)	(62.0)	(38.0)	(54.4)	(45.6)		

6.17 Potable water-supply was available to only 28.4 % of the households through taps - and except for 10.5% out of them rest had to fetch water from a distance of '30 meters - 100 meters and above'; and bathing facilities in the house were available to only 20.5 % of the households or

upto a distance of 30 meters - and rest of the households had to bring water from a 'distance of 30 meters to 100 meters and more'. In these settlements, construction labours' proportion to total labour force was 4.5 percent (in 1976) - as compared to 1.2 percent of the city as a whole in 1971.^{7/} In Lucknow, earlier than 1971, 64.6 of the immigrants did not independent water supply; 51.2%, not having independent latrine; and 86.4 %, not having bathing facilities.^{8/}

6.18 In the Survey, under reference, conducted in July-August, 1977, of KAVAI towns for construction labour, it came out that in the aggregate, 57.5% of the households had 'pucca' floor; 62 % , 'pucca' walls; and 54.4 percent, 'pucca' roofs. But it is interesting that highest proportions - amongst skilled, semi-skilled and unskilled construction labour - of pucca floors, walls, roofs were for 'semi-skilled', at 80.7 percent, 81.2 percent, and 81.2 percent; of course, the 'unskilled' had lowest proportions of 36.3%,^{and} 40.4 percent for floors, walls and roofs and 37.5 percent/and the 'skilled' had correspondingly proportions of 63 percent, 70.8 percent and 53.8 percent. All other households had 'katcha' floors, walls and roofs.

^{7/} Refer to V.Jagannadham and C.M.Palvia's Study on Kanpur.

^{8/} Refer to J.F.Bulsara's: Problems of Rapid Urbanisation in India.

6.19 Potable water through 'taps' was available to 64.8 percent. Thus, in the two facilities available to the construction labour, were markedly better than available either to the slum and squatter dwellers or the total citizenary of the KAVAI towns - and perhaps in regard to urban population as a whole in the country.^{9/}

^{9/} But according to our detailed information about slum and squatter settlements of Kanpur, the dimensions of the rooms (were less than 1 metre in length, breadth and height in regard to quite many households) - and healths and hygienic conditions, sanitary facilities in these settlements were at levels which pricks human conscience every moment.

S U M M A R Y

1. Average construction work force employed by the public sector construction agencies, was large in the groups of '11-20', '21-50', and '50 and more' workers; and in the private sector, it was relatively small-sized.
2. A large proportion of the construction labour (57%) is drawn from rural origins - and it is necessary to mould themselves to the characters of construction industry; therefore, for quite many of them to keep their family members with them - where wife and other children can work also, if need be. In view of this the housing and other facilities available at sites are poor-except for 'bathing' and 'canteen/tea-shop'.
3. Model Rules, Codes, etc. prepared by C.P.W.D. for contractors are flouted in a large way - as "work-charged men and contractors' labourers are concerned - these constitute a majority of the total number of workers employed directly and indirectly under C.P.W.D. - the government are in the company of some of the worst employers in the country".
4. The data show that it is not true that skilled labour is always educated/literate, nor it is so that semi-skilled or unskilled form a crowd of illiterates - and the 'concept' held in developed countries otherwise is not true in developing countries.
5. Only 6.8 percent were the members of the trade-unions; and amongst them 'semi-skilled' formed, 41.5 percent. Again, semi-skilled were of the view that 'strike' can as well be an effective weapon; they had also cast higher percentage of their votes in Assembly (1977) Elections; and they formed a larger proportion in the leftists' parties (C.P.I. and C.P.I.-M) as members - and also in Janata Party - as a democratic party.
6. Better housing conditions, and water-supply facilities demonstrate, that construction labour of KAVAIL towns had improved living conditions; but not in regard to housing conditions 'at site' for labour at work (and their family).

...

VII. PERSPECTIVE ACTION-ORIENTED STRATEGY FOR CONSTRUCTION WORKERS IN KAVAI TOWNS:

... General Approach

7.01 During the month of February 1970, the census-operation recorded 21,160,595 Census Houses^{1/} in Uttar Pradesh; 18,475,010, in rural areas; and 2,685,585 in urban areas. The rural/census houses, provided all types of services, such as residential facilities and other services such as that of shopping, business, office, factory, entertainment, places of worship, restaurants, etc. A scenario of different types Census Houses (a term enveloping all types of buildings including residential buildings - as listed in the footnote below), in U.P. divided according to urban and rural areas is presented in Table 7.01. From the data, it comes out boldly that nearly two-thirds of the Census Houses are residential - though the proportion is higher in urban areas at 69.53 percent, and 64.85, in rural areas. In case of all non-residential Census-Houses also urban areas have an edge over rural areas. Conspicuously, for

1/ The term 'Census Houses' include: (i) vacant; (ii) residence; (iii) shop-cum-residence; (iv) workshop-cum-residence including household industry; (v) hotels, sarais, dharamshalas, tourists houses and Inspection House; (vi) Shops excluding eating places; (vii) Business Houses and offices; (viii) Factories, worksheds, and workshops; (ix) Restaurants, Sweetmeat shops and eating places, (x) Places of entertainments and community gathering, Panchayat Ghar excluding places of worship; (xi) Places of worship; and (xii) Others.

Table - 7.01: Census Houses and their Types and Proportions according to Uses in U.P. and its urban and rural Areas, in 1971:

1	2 U.P. Total	3 %	4 Urban	5 %	6 Rural	7 %
(in million)						
1. Vacant.	1.063	(5.03)	0.177	(6.61)	0.886	(4.79)
2. Residential	13.849	(65.44)	1.867	(69.53)	11.981	(64.85)
3. Shop-cum-Residential	0.178	(0.84)	0.036	(1.33)	0.142	(0.72)
4. Workshop-cum-residential including household industry.	0.194	(0.92)	0.051	(1.90)	0.143	(0.77)
5. Hotel, Sarai, Dharamshala, Tourist Homes & Inspection Houses.	0.022	(0.10)	0.007	(0.25)	0.015	(0.08)
6. Shops-excluding eating houses.	0.424	(2.00)	0.234	(8.71)	0.190	(1.03)
7. Business houses and offices.	0.042	(0.20)	0.022	(0.83)	0.200	(0.11)
8. Factories, Workshops & Worksheds.	0.287	(1.35)	0.107	(3.98)	0.180	(0.97)
9. Restaurants, Sweetmeat shops and eating places.	0.030	(0.14)	0.018	(0.07)	0.012	(0.07)
10. Entertainments and community building - excluding places of worship.	0.007	(0.04)	0.001	(0.05)	0.006	(0.03)
1. Places of Worship (Temple, Church, Mosque, Gurudwara, etc.)	0.182	(0.86)	0.027	(0.01)	0.155	(0.84)
2. Others	4.883	(23.08)	0.138	(5.13)	4.745	(22.69)
3. Total No. of Census Houses:	21.161	(100.00)	2.686	(100.00)	18.475	(100.00)

Source: Housing Report and Tables of Uttar Pradesh - Table - 3, pages xiii-xiv. (Census of India 1971, Series 21, Part IV, 1973).

'shops - excluding eating houses', 'business houses and offices', the proportions in urban areas are almost 8-times of that in rural areas; four-times, in 'factories, workshops and worksheds'; and 'twice or more' in case of 'shop-cum-residential' and 'workshop-cum-residential - including household industries' census houses. However, in the category of 'others' (that is, perhaps including farm houses and cattlesheds, farms and warehouses, etc.) the proportions of rural areas is more than four-times that of urban areas - rural areas proportion being 9-2.69 percent and that of urban areas 5.13 percent.

7.02 However, within the total buildings, the needs of housing (or residential buildings) is overwhelmingly high-forming 'two-thirds or more'. Nonetheless, the lead is that of urban area, in case of identified non-residential buildings, in ^{any case} / the capital assets in case of all types, of buildings are sizeable; but it is patently clear that both in rural and urban areas, not only quantum of residences falls short of the needs but quality of various housing and households services are eminently poor. Essential services of potable water supply, drains, sewerage and sewage, light and gas-supply, transport facilities of roads, footpaths, cycle tracks - and services of buses etc. are equally poor. Congestion and overcrowding in the houses tells on the health and productivity of the labour force and congestion/or density on various urban services; ^{this situation} paralyse movements, activities and momentum of the urban machine and its working to the distress and

misery of the urban population - and more so on its working population. Lack of 'maintenance and repair' expenditure, degenerates and depreciates the life expectancy of the existing real estate assets, and inability to invest in new construction of these assets for the increasing waves of population pauperises the environs of urban life - and reduces employment volume and intensity, for construction labour - and in the process also blunts the effectiveness of construction skills.

7.03 Nearly 50 percent of the urban population in U.P. resides in Class-I towns (of population 100,000 and above). Out of 50 percent of 22 Class-I towns of U.P., the population living in five KAVAL towns, according to 1971 Census, was 28.9 % : 9.35 percent, in Kanpur; 4.78 percent, in Agra; 4.75 percent, in Varanasi; 3.97 percent, in Allahabad and 6.05 percent, in Lucknow.

7.04 In U.P. as a whole, in urban areas, the 'use distribution' of 'Census houses' has been presented in paragraph 7.01; and about the various 'essential services' in paragraph 7.02. Now, it may be worthwhile to see the position obtainable, as in 1971, in the districts/towns of Kanpur, Agra, Varanasi, Allahabad and Lucknow - in relation to their population. Table - 7.02, portrays the data which might offer an analytical situation for the five districts, KAVAL towns. The highest average size of the household, is 6.04 in Agra - followed by 5.98, in Varanasi; 5.64, in Lucknow; 5.60, in Allahabad and 4.94 in Kanpur. These average households in one sense convey the element of twin-factors of: (i) overcrowding and congestion - caused by/rise in population

(ii)
 and low rate of building activity. Again, the vacancy ratio is about 5 percent in Agra, Allahabad and Lucknow - which means the people have moved away to the other places in a small way. In case of Kanpur, the vacancy proportion is low at about 3 percent, which is normally due to houses with small houses/rooms (as in slum and squatter areas) and also due to a very low rate of building construction - and more of increasing load on Kanpur's lands, housing and essential services. (See Tables 7.02 and 7.03).

7.05 The main factors that flow are that the buildings, used wholly or partly as residences, are about 83.8% in Kanpur; 81.8%, in Lucknow; and 78.9 %, in Allahabad; and about 73 % both in Agra and Varanasi. (See Table 7.02). The historical and religious cities (namely, Agra, Varanasi and Allahabad), have a lower ratio - because there are relatively more 'shop-cum-residences' and 'workshop-cum-residences' than they are in bigger cities of Kanpur and Lucknow - first recognised as the 'industrial capital' and the other 'administrative capital' - with more of big-sized industrial/administrative/commercial offices. So also Agra, Varanasi and Allahabad have more places of worship (forming '1 percent and little more'). Yet the buildings used (wholly or partly) for residences range to 'three-fourths to four-fifths or more'. In essence, 'housing' is significantly important in any investment, any dislocation in its importance probably leads to generate imbalances between various other social and economic sectors - and the 'role of public sector' in the residential and non-residential building's construction,

Table - 7.02: Distribution of 1000 Census Houses - according to Uses in the Urban Areas of K.A.L. Districts of U.P. in 1971.

1 Census Houses	2 Districts-Only Urban areas				
	Kanpur	Agra	Varanasi	Allahabad	Lucknow
A. 1. Population ^{1/}	1,163,840	576,830	538,140	492,670	666,955
2. Households' Average-size in the cities.	235,800 (4.94)	95,550 (6.04)	89,940 (5.98)	88,095 (5.60)	118,230 (5.64)
3. Census Houses (Numbers per 1000 of Census Houses)					
(i) Vacant Census Houses	31	51	63	49	51
(ii) Total wholly or partly residential	836	231	222	789	818
a) Residential	819	717	639	751	800
b) Shop-cum-residential	9	4	28	25	13
c) Workshop-cum-residential	8	10	62	13	5
(iii) Hotels, Sarai, Dharamshalas, Tourist Homes, Inspection Houses.	1	5	2	1	2
(iv) Shops excluding eating houses.	55	94	78	50	64
v) Business Houses & Offices	8	6	9	12	5
vi) Factories, Workshops and work-sheds	28	58	36	26	18
vii) Restaurants, Sweetmeat shops and eating houses.	7	8	10	8	5
viii) Entertainment & Community - Panchayat Ghars - excluding Places of workshop.	-	1	1	-	-
ix) Places of worship (Temples, church, Mosque, Gurudwara, etc.)	4	9	15	11	8
x) Others	30	37	57	54	29
TOTAL	1000	1000	1000	1000	1000

1/ There were 1,253 households prisons, in Kanpur; 362, in Agra; 243, in Varanasi; 563, in Allahabad; and 1496, in Lucknow.

Source: Housing report and Tables of Uttar Pradesh 1973.

Within
construc-
tion

in any period (say a year, or a period of years) Thus optimum proportion for residences is significantly imperative investment, as has been statistically shown in Annex-2.01 and 2.02.

7.03 However, to reinforce the argument, the case of United Kingdom may be recapitulated - where in the years 1951, 1952, and 1953 new housing's share was 46.1 percent, 51.7 percent, and 54.8 percent respectively in 'Money Value of total construction in new-buildings and works'^{2/} So also the proportions of public and private sectors were between 72.7 percent to 84.2 percent (during 1951-53), and 15.8 percent to 27.3 percent respectively for 'new housing'; and in other 'new buildings and works' - private sector's share ranged between 32.1 percent to 41.3 percent, and that of public sector ranged between 58.7 percent - 67.9 percent.^{3/}

Table 7.03: Some Factors which determine Housing Conditions in KAVAL Towns as revealed by 1971-Census.

1 Towns	2 Average House- hold Size	3 Persons Density per room	4 Percent owned houses	5 One-room Households %	6 Two-room Households %	7 Col.(5) + Col.(6) %	8 Pucca Houses %
Unpur	4.94	2.94	16.7	59.6	27.0	86.6	
Agra	6.04	3.12	55.1	50.0	28.4	78.4	
Varanasi	5.98	2.26	58.8	36.4	26.0	62.4	
Allahabad	5.60	2.42	43.0	38.0	31.4	69.4	
Lucknow	5.64	2.70	41.8	45.0	28.5	73.5	

Sources: Housing Report and Tables of Uttar Pradesh - H-III, H-III.2, H-IV.1 op.cit.

2/ Source: 'National Income and Expenditure 1946-53' (U.K. Central Office of Information - H.M.S.O.) Table - 46.

3/ Op.cit. U.K. National Income and Expenditure, 1946-53 Table 43.

Potentials
of Constr-
uction
Capacity -
and the
Size of
Employment
of Labour

7.07 Building labour's employment potential, ultimately is dependent on the expectations of 'investment in construction' - which often is the fore-runner of other fixed investments and other investments. Employment of man-power in construction also includes architects, engineers, surveyors - who are generally employed by the construction agencies - whether public sector or private sector contractors^{4/} or individual owner-builders. The number and size of skilled and unskilled employees, at construction sites, is sizeable.. It consists of primarily labour (such as technical/skilled, unskilled) and tertiary labour (namely, administrative, clerical and office unskilled labour). The skilled labour are: carpenters, masons/bricklayers, plumbers, painters, electricians, etc. - of these the trades-wise proportion might/would differ from place to place country-wise and region-wise and state-wise - depending upon the type of building materials available and the need of the materials suitable to weather/climate etc. to offer 'comfort of living in the house'. The availability of the required 'labour force' in the construction sector is a crucial factor to determine the 'capacity' of the building or construction industry - along with the professional man-power (such as, architects, engineers, quantity surveyors, draughtsmen, etc.

^{4/} The contracting 'sub-sector' firms are: construction engineers, reinforced concrete specialists, Electrical contractors, Centrally-Heating and Ventilating Engineers, Sanitary and Plumbing Engineers, Painting and Spraying Contractors etc.

7.08 In times of emergencies, such as war, famine, earthquake, floods etc. the tempo and volume of construction will vary in volume and types; for example in war-time defence construction will boom at the cost of housing construction and civil buildings, in the face of 'famine' - to offer work, roads or other public construction: is encouraged, and after having earthquakes and floods - construction activity of temporary housing will be initiated - to be followed by permanent settlement. Again, post-war period, will involve the governments to heavy investment pumping for 'housing' both to fill the pent-up demand as well as to face the booms of 'marriages' and 'baby-guests' (that is, more of family formations and extension of family sizes). Thus, the ingenuity of the supply of construction through training and refresher courses (and if necessary by mechanisation)^{5/} will be in a position to develop and refurbish the labour-capacity according to changing needs.

7.09 Generally, the financial costs' proportion for labour ranges between 22-30 in developing countries; and about 30-50 percent in developed countries. In the latter, the cost of labour rises, because of the use of highly mechanised plants at site which require employing of technical personnel - whose marginal productivity is higher and **therefore** financial cost in employing them is also upwards.

5/ Mechanisation can be highly helpful, in periods of emergency to clean and develop land for raising buildings - and moreso when vertical apartment buildings are to be accomplished to rehabilitate a large number of households or during war-time to meet the threat of the invader(s).

Financial
cost, and
Norms of
Employment
of the
Skilled &
Unskilled

7.10 In case of India, 'investment per man-day' was around Rs 18^{6/} in mid-1960's and will be, in 1978, - about four-times or Rs 72; which gives per-man day wage at about Rs 18 or 'product man-day mix unit of skilled + unskilled' will cost about Rs 45 (involving 1 'skilled' and 2.8 unskilled man-day - and believing that the wage of the unskilled is about half of the skilled). Or it can be said that for one skilled tradesman's employment requires employment of 2.8 unskilled; they respectively earning wages of Rs 18 and Rs 27. As a follow-up, materials cost will be around Rs 155; and overhead charges, Rs 20. (The over ratios between Wages: Materials: Overhead Charges being 2.3 : 8.1 : 1 or for every construction investment of Rs 220 (in current prices of April 1978) the employment generation for construction labour will^{7/} be for 1 skilled and 2.8 unskilled - making a total wage bill of Rs 45, for them.

7.11 Cost of construction labour has thus a fairly fixed proportion to total construction cost - in particular localities over a reasonably short period of time - but it changes with the influx or efflux of the elements of productivity (such as mechanisation, educated and technically up-dated knowledge of trades' skills, refresher courses or export of the skilled labour - as at presently occurring due to flight of the Indian construction labour to Middle East and North African countries).

6/ C.M.PALVIA: Employment in Construction Industry: Its Relation to Investment and Wage, (NBO Quarterly Journal, Vol.XIV, 1968).

7/ Ibid. Table VI.

7.12 Broadly, the ratio of investments are: fixed capital investment, 85-90% and working capital around 10-15 % - variations dependent in the rise or fall in inventories of finished goods, and stock of raw materials required to manufacture the finished goods. Of the total fixed capital investment, as has been explained earlier, the proportion ranges from 55-75 percent for construction investment^{8/}; in view of this the 'norm' can be taken at two-thirds of the fixed investment (though in case of developing countries, because of the need for setting up of infrastructures at desirable levels, it is very likely the proportion of construction investment might be even higher upto three-fourths). However, the proportion invested in housing of construction investment in housing is about 50 percent in developed countries but is 15-25 percent in developing countries, which explains the highly depressed housing situation and conditions. Based on the, aforesaid proportions, a workable estimate can be made of likely amount of financial investment that will be required, in India, and the KAVAI towns of construction investment - drawing from the G.D.P. projections.

8/ "The areas of housing and urban development are not only sectoral; they distinguish themselves as having a high degree of capital infra-structure, not found either in the agricultural or rural atmosphere; for example, the sweep of developed land and building structures in the rural areas are close to nature, the man-made phenomena and injections are much less in agricultural and primary occupations and the role of fixed capital formation is minor - and in the housing and urban sectors, the behaviour and phenomena are more or less reverse". (C.M.Palvia: Social Indicators of Housing and Urban Development - Nagarlok, a Quarterly Journal of Urban Affairs, Indian Institute of Public Administration, Vol.VII No.3, 1976).

7.13 An analysis of recently released Central Statistical Organisation's National Accounts Data, in India, show that in terms of 1970-71 prices, from 1970-71 to 1976-77, the national income rose by 14 percent - registering an annual average rate of 2.7 percent over six years; and per capita income, by 0.5 percent a year over six years. However, in current prices (during hyper inflationary situation). Net Domestic Product rose by about 1.16 percent - registering an annual average rate of little less than 20 percent - and per capita income, by about 8 percent; but it is a parallax in real terms. (See Table 7.04).

Table - 7.04: National Accounts Data regarding
(1) National Income in constant prices of 1970-71; (2) Net Domestic Products in Current Prices; (3) Savings; and (4) Investment - (1970-71 to 1976-77).

Year	National Income in 1970-71 Prices (Rupees)	N.D.P. in Current Prices (in Millions)	Savings in Current Prices	Investment (Current Prices)	Percentage of Col.(4) to Col.(3)		Investment in construction estimated 65% of 6-b.
1	2	3	4	5	6(a)	6(b)	7
1970-71	344,120	382,190	46,170	50,100	12.1	13.1	8.5
1971-72	340,710	410,910	50,180	54,960	12.2	13.4	8.6
1972-73	343,230	452,920	53,480	56,450	11.8	12.5	8.1
1973-74	361,830	559,800	71,640	75,560	12.8	13.5	8.7
1974-75	364,550	662,480	88,620	95,140	13.4	14.4	9.36
1975-76	396,260	685,530	100,020	98,553	14.6	14.4	9.36
1976-77	401,640	724,240	115,170	100,900	15.9	13.9	8.7

7.14 Further from the CSO National Accounts data, it can be seen that during the six-year period, the savings ratio to N.D.P. marked upward movement from 12.1 % in 1970-71 to 15.9% in 1976-77; whereas the investment ratio lagged behind as the ratio was 8.5% in 1970-71 and 8.7% in 1976-77.

13.9% only - though on the time-paths it twinkled at a higher points as compared to savings ratio. Evidently, the sagging in the investment rate was an ominous sign, since the savings mobilized by the nation could not be garnered into investment - inputs endangering the growth in productivity and output. It is recognised all over that investment creates job-market, but because of lethargy in putting the savings into investment 'kills the golden goose that lays the eggs'. The public sector, nonetheless, raised its share in country's new investment from 44.7 percent in 1970-71 to 54.5 percent. But the twin factors of 'indolence and complacency' of the public sector on the one hand and on the other the private sector's inability to maintain or augment their savings - inputs into physical capital assets corroded the construction investment because of inflationary pressures on the consumer and wage goods. Actually, the input of 'households savings' in household sectors' physical capital assets dwindled from 48.3% in 1970-71 to 41.2 % in 1976-77 - stopping and relaxing in the ditches of 43.2%, in 1971-72; 28.5%, in 1973-74; 37.9%, in 1974-75; and 32.9%, in 1975-76. In the public sector investment strategy became cyclical in form and indecisive in substance - with 17.4 percent share in investment in 1970-71 declining ^{to} 14.7 percent, in 1971-72; and 13.5 percent, in 1972-73; and climbed to 15.1 percent in 1973-74, and jumped to 24.7 percent, in 1974-75 and 25 percent, in 1975-76; but thereafter nose-diving to 20 percent, in 1976-77. Thus willy-nilly the private sector

and the public sector consciously or unconsciously joined in conspiring the arresting the inflow of investment out of the savings made; and left the construction sector 'high and dry' and reduced employment volume primarily in the construction with its concurrent secondary and tertiary effects by raising the army of unemployed tradesmen and unskilled workers - moreso in the urban areas. (See Table - 7.05). The corporate sector also enjoyed the 'kicks and digs' of cyclical investments -

Table - 7.05: Broad Percentage Distribution of Net Savings/Investment in the Indian Economy put into physical assets and other possible related sub-sectors.

1	2	3	4	5	6	7	8
Source	: 1970- : 1971	: 1971- : 1972	: 1972- : 1973	: 1973- : 1974	: 1974- : 1975	: 1975- : 1976	: 1976- : 1977
<u>Household Sector</u>							
a) Financial	% 29.7	30.9	38.6	49.7	28.7	38.8	37.2
b) Physical assets	% 48.3	49.0	43.2	28.5	37.9	32.5	41.2
<u>Sub-Total</u>	% <u>78.0</u>	<u>79.9</u>	<u>81.8</u>	<u>78.2</u>	<u>66.6</u>	<u>71.3</u>	<u>78.4</u>
I. Public Sector	% 17.4	14.7	13.5	15.1	24.7	25.0	20.0
II. Corporate Sector	% 4.6	5.4	4.7	6.7	8.7	3.7	1.6
Total of I+II+III.	100.00	100.00	100.00	100.00	100.00	100.00	100.00

probably in the fixed capital formation as well as in building the heaps of inventories! In fact, at one stage, ill-advised decision was taken by the Government to stop construction activity both in the public and private sector in the last quarter of 1973 or the first quarter of 1974 - which had its pernicious effects of throwing out few millions of construction workers out of employment.

B. Strategy for KAVAL Towns

7.15 For the future strategy to arrest the process of degeneration as also to engender the process of development and acceleration in construction activity in KAVAL towns, it would be meaningful to throw our sights on the possible scenario of the inhabitants who will live in and around these towns. For this the main demographic projections are called for, as a first exercise - followed by distribution of the population into working population and non-working population - and further to determine the employment volume in the construction activity and to train the necessary man-power for the construction sector.

7.16 It has been observed earlier that out of the 22 class-I towns (with population of 100,000 and more) in U.P., of which KAVAL towns also form a part - rather a sizeable ^(about 29%) part/of the population size of the above referred to 22 class-I towns. Futuristic projected population size from 1977-2001 is attempted for the five KAVAL towns - at ten -year point so as to determine the number and size of the households, ^{and} consequently to enable the dwelling units required for the households - and construction of non-residential buildings and other non-building constructions - aforesaid complex is dependent upon the size of inhabitants as also, its density, and the ambit of the urban sprawl.

Population Growth

7.17 The growth of population in the KAVAL towns had receded in the decennium of 1961-71 - it was in the range of '19.1 percent to 31.3 percent' as compared to the

earlier decennium of 1951-61 - when the range was between '32 percent to 37.7 percent'. It is in the realm of possibility that the priority to rural development, decentralisation of industrial establishment, family planning thrust, spread of education at all levels and ages as far as feasible, late marriages of the boys and girls, diminution in the rate of family formations, etc. jointly and severally will influence the deceleration in the population growth in the KAVAL towns also - and migration from rural areas to urban areas will not form so magnetic as it used to be earlier in 1930's, 1940's and 1950's. Therefore, during the next 25 years' the urban population growth rate will be blunted - except for Allahabad where during 1961-71 decade the growth was only 19.1 percent. Notwithstanding the above, it is believed that by 2001 A.D., the urban growth in the KAVAL towns will be on 'an average^{at}/20 percent for the decennial periods (See Table - 7.06).

7.18 The proportion of working population, on the other hand is likely to move up from the low range of '25.7% in Agra / ^{and} 29.6% in Kanpur,' because of 'increase in life expectation at births as also at specific ages', longer working life and accepted age of about 60 years for retirement in the public and private sectors - the percentages of working population in 2001 are likely to rise upwards of 30%. There are developing countries where working population proportions to total population - are from 33 percent to about 50.5 percent; for example, ⁱⁿ South Africa (33%), Cuba and Gautemala (33.3%), Sri Lanka (33.7%), Indonesia (33.5%), Argentina (34.1%), Algeria (34.2%), Bolivia (34.5%),

Jamaica (36.9%), Ghana (38.1%), Gabon (48%), Japan (49.6%), Haiti (50.3%), Ivory Coast (50.5%), Thailand (51.3%). So also, there are developed countries having proportions of working population, generally more than 40%; for example, Bulgaria (51.9%), Finland (46%), France (42.4%), German D.R. (49.1%), Hungary (47.6%), Poland (51.9%), Romania (54.2%), Sweden (44.4%), U.K. (46.6%), Yugoslavia (43.3%), Australia (42 %). In India, according to 1971-Census, working population is 33.5% of the total population.

7.19 It is therefore, possible that the persons in the working age group will increase, as our life expectancy has increased at births as well as at specific ages - and the proportion(s) of 'working population' should move to about 40% in the country from 33.5%; and in U.P. (and at least in its bigger towns) must reach at about 33 percent by 2001 A.D. and about 32 percent in Agra in view of larger lee-way. But for Kanpur, it need to be about 35% because of huge slum and squatter population and a very low building activity for over '50 years or more and terrific decline in the construction labour - reduced to just 1.2% of the working population as noted by 1971-Census. (See Table - 7.06).

onstruc- 7.20 Proportion of construction labour^{9/} to working
labour population is another issue, particularly when construction activity is not only a precursor of long-life fixed

9/ The proportion of construction labour to total work-force in Ghana is 3.5%; Mauritius, 10.7%; South Africa, 5.4%; Iran, 5.9%; Iraq, 5.2%; Japan, 6.1%; Singapore, 5.3%; Costa Rica, 5.9%; Cuba, 3.3%; Jamaica, 8.4%; Panama, 4.6%; Puerto Rico, 8.8%; Argentina, 6.2%; Chile, 6%; Colombia, 3.7%; Guyana, 8.1%; Peru, 3.5%; and Venezuela, 5.7%.

infrastructure investment, on which depends the economic growth and the catalytic accelerated growth. The decline in the ratio of the construction labour to the total work force which brought about super-deep decline in construction activity - so much so that 1971-Census deciphered about 18000 (or less) construction labour in all the five KAVAL towns. The distribution of employment of the work force in construction sector is an important pillar for augmenting the backward and forward multipliers generating employment 'at site' and 'off-site'. The rural development, decentralisation of industries and active plans to establish, the 'industrial centres' - in all the district centres - as firmly ^{Decisive} visualised/ process of implementation opens wide vistas for all the district centres as also ^{for} the KAVAL towns. In view of this it is projected to raise the 1971-size of construction labour of 18,000 (or less) to higher levels to 34,000 by 1981, 58,000, by 1991; and 90,000, by 2001 - to respectively - to service a total population of 4.88 million population, in 1981; 6.19 million, in 1991; and 7.75 million, in 2001, - from a population of 3.83 million, in 1971, in KAVAL towns.

7.21 The main activity issue is to raise the construction labour force to 90,000 ^{plus} -/adjusting for those who would retire from the construction job market.

In the ratio of labour mix demand-of skilled and unskilled labour in the ratio of 1:2.8 -will require training of about 24,000 skilled labour during the next 22-23 years or roughly about 1800-2000 skilled labour to be trained in KAVAL towns - in relation to their needs in an optimal proportion.

Table - 7.06: Population, Total Workers and Construction Workers in KAVL Towns for 1971, 1981, 1991 and 2001, as counted and now projected for KAVL TOWNS.

Town	Population (in million)					Working Population (in million)					Construction Workers (No)				
	1971	1981	1991	2001		1971	1981	1991	2001		1971	1981	1991	2001	
1	2	3	4	5	6	7	8	9	10	11	12	13			
Kanpur	1.27	1.75	2.40	3.20	0.377	0.543	0.780	1.120	4,540	10,860	21,365	38,710	(1.2)	(2.5)	(3.0) (3.5)
					(29.6)	(31.0)	(32.6)	(35.0)							
Agra	0.63	0.78	0.95	1.14	0.163	0.218	0.285	0.365	4,740	6,760	9,405	12,775	(2.9)	(3.1)	(3.3) (3.5)
					(25.7)	(28.0)	(30.0)	(32.0)							
Varanasi	0.61	0.75	0.91	1.09	0.168	0.217	0.282	0.360	2,620	5,425	8,460	11,860	(1.6)	(2.5)	(3.0) (3.5)
					(27.6)	(29.0)	(31.0)	(33.0)							
Allahabad	0.51	0.61	0.73	0.88	0.142	0.190	0.226	0.290	2,380	4,750	6,780	10,150	(1.7)	(2.5)	(3.0) (3.5)
					(27.8)	(29.5)	(31.0)	(33.0)							
Lucknow	0.81	0.99	1.20	1.44	0.227	0.292	0.362	0.475	3,480	6,350	11,860	18,625	(1.5)	(2.5)	(3.0) (3.5)
					(27.8)	(29.5)	(31.0)	(33.0)							
Total	3.83	4.88	6.19	7.75	1.077	1.460	1.935	2.610	17,760	34,145	57,870	90,120			

7.22 Allowing for the 65 off-days in a year, a man-year consists of 300 days; and therefore the need of 24,000 is to be marked-up by at least 20 percent or 4800 man-years of skilled labour - making a total of 28,800 or 29,000 skilled labour - and ^{raising} about 500 per annum for training seats making the annual intake by the IIT's of 2400 seats/trainees in different occupations of building trades. The State government should be implored to use the provision of funds for vocational training and re-orient training to sharpen the quality of building trades - and provide minimum tools required by the construction workers - both skilled and unskilled. There should always be some crash training programmes for the unskilled labour for about 3-4 weeks to update their methods of working; and during that period they should be given stipends.

7-23 . The urgent construction operations which need to be undertaken by the Town Development Authorities - relate to water-supply systems^{10/} and establishing of sanitary systems^{11/} to raise the health-levels of the citizenary. In this

^{10/} Metropolitan towns of Bombay, Delhi, Madras, Bangalore, Hyderabad had been allocated, in the Fifth Plan, of Rs 2106 million; Rs 925 million for water-supply and sanitation in Bombay; Rs 600 million, for Delhi; Rs 275 million, for Madras; Rs 150 million each for water-supply, in Bangalore and Hyderabad and Rs 1500 million, for in the integrated urban development in Calcutta by IIRID, which includes water-supply and sanitation with a provision of Rs 700-800 million.

^{11/} Sewerage Schemes in the State plans had a provision of Rs 780 million in the Fifth Plan - which included turning of dry latrines into sanitary latrines in unsewered areas. Also for solid waste disposal; the scheme was proposed for all towns with population of 2-10 lakhs. Thus, all the five KAVAL towns have been taken care of for improvement of sanitary systems.

direction funds should be mobilised from Life Insurance Corporation, Housing and Urban Development Corporation, and also negotiate with International Bank for Reconstruction and Development and its affiliate International Development Association for long-term loans on soft interest and repayment terms as has been done, to certain extent in Integrated Kanpur Development Plan.

7.24 New construction items - apart others - , in case of KAVAL towns, is the need to enable supply of housing units. Nearly 15-20 of census houses in the KAVAL towns, in 1971, were 'kutchra' and their 'size' and 'percentages' over the last must have risen 7-8 years/. As shown earlier in Table 7.03 the 'congestion' and 'overcrowding' in the houses/rooms, require the elimination thereof, in lieu/more houses are to be built - along with the replacements, for normal depreciation, of and extending of one or two rooms in the existing 'pucca' houses. It is easier to achieve this in Varanasi, Allahabad, and Lucknow where own-houses proportions are higher (ranging from 43-58 percent) by giving loans/subsidies on concessional terms, according to the income-levels of the owner-households. But as Kanpur and Agra, have owned houses in the low range of 5-16 percent only, the municipal and town development authorities should raise the quantum and quality of the housing units in the rental stock of housing. The room 'congestion' is abominable in the following order - in Kanpur, Agra, Lucknow, Allahabad and Varanasi - where percentage of households living in 1-2 rooms are 86.6%, 78.4%, 73.5%, 69.4% and 62.4% respectively. The 'overcrowding' in the residential units is expressed by the average size of the households, in the following order - Agra (6.04 persons), Varanasi (5.98 persons), Lucknow (5.64

persons), Allahabad (5.6 persons) - and in these four towns, because of doubling of households/families, more of housing units are required to dilute the number of persons living with two or more households/families. In case of Kanpur, the average household size holds less than five persons - but here for at least one-third of the total households - who live ⁱⁿ/_{-where} slums and squatter dwellings' the room sizes are shockingly small with no ventilations and essential facilities. It is ^{equally}/necessary to re-build, and/or provide improvement in water-supply, and sanitary facilities.

7.25 The items of re-construction and new constructions identified in para 7.23 and 7.24, require immediate action and implementation during the next two years - which will absorb employment for construction labour sizeably - in such a way that, by 1981, the strength of the construction labour ^{would} double itself to about 34000 - 35000 aggregatively, from 17000 - 18000 in 1971 for the KAVAL towns. In all the five towns the size of construction will double-up - except for Agra where the rise may be about 50 percent since the **proportion** of construction labour to total work-force of the town was already 2.9 percent in 1971. Further, by 1971, the construction labour of the KAVAL towns would treble; and more than quintuple, by 2001. (Refer to Table - 7.06).

C. Organisational Issues

7.26 There is sizeable difference between agricultural and industrial labour in regard to seasonal operations, employment under one employer etc. Construction labour is more analogous to industrial labour - and not so with agricultural labour. Agricultural labour is employed during sowing and reaping season - both for 'kharif' and 'rabi' crops - whereas, the construction labour, in India, is employed - except (i) for heavy rains in high rainfall areas; (ii) in winter in snow-bound areas - and not otherwise. There is not seasonality cycles - as they may be in Scandinavian countries. Russia, Korea, Japan, Canada, North U.S.A. over a longer period and for few months in the Central Europe. Even in 9-11 months longest and hardest winter areas, now the problem of unemployment situation has been largely contained, such as in Scandinavian countries and Canada; this was impelled by realisation, that (i) short summers in northern countries of Europe and America must somehow maintain a higher level of construction activity in winter if they are to obtain the public and private sector construction work - which they want; and (ii) the principal obstacles to winter construction are more institutional and not technological or weather-oriented. In these countries, seasonal stabilization through public sector construction has been most effective when it is translated as a key element in perspective public works programmes - and also when such programmes are integrated with total man-power strategy. The aforesaid integrated programmes can as well be conducive to a higher rate of economic growth. If the people

cooperate in accepting the control over construction activity in scheduling construction, it may prove to be fruitfully ingenious modus-operandi of optimal use of the construction man-power.^{12/}

7.27 In India, even in heavy rain areas, mountainous terrain does not create much problem for building or construction operations; ^{There} / may be a dislocation in construction for a couple of months and not more, such as in Assam, West Bengal and Tamil Nadu or Kerala. The warding off the seasonality contributes sizeably in augmenting the welfare of the community - and price stability by supplying construction infra-structure to the society, and helps in producing 'goods and services' and thus creates, dents on the inflationary pressures. Moreover, it is of value that to be idle in periods of inclement weather and releasing of pent-up demand for 'goods and services' in periods of good weather, became very conspicuous harbingers in accelerating

construction costs which, more often than not, ferment general price inflation - and can be the sworn enemies to

^{12/} European countries have been faced not only with wartime destruction of capital and the backlog of construction demand inherited from the Great Depression, but also with the rising construction requirements for economic growth. In this dual problem, the wastage of construction capacity caused by seasonal employment become unconscionable - and it is estimated in Europe that mainly through elimination of construction labour's seasonal unemployment will increase output by 50 percent. The attack on this wastage of productive capacity became one of the focal points in Post-War construction policy in Austria, France, Germany, the Netherlands, the Scandinavian countries, and the United Kingdom. We, in India, can draw some moral to avoid waste in creating stoppages in construction (which in a sense long-life investment asset); it is rather, in boosting the employment in construction which in a long-run helps in production and in annihilating the demon of inflation in developing countries (like India).

efforts launched for satisfying housing demands. However, it may be worthwhile to consider the 'Lay-Off Prevention Scheme' - which is being run in the Netherlands to employ and compensate in the event of 'lay-off' the construction workers. The scheme expects the workers to work during bad weather (between November 15 to March 15) for at least 3 months, in continued work on bad weather days; in such a situation the employer pays extra allowance, by allocating 75 percent of the savings - which 'bad-weather insurance funds' make (namely, 'building industry' and 'painters' trade' funds) plus the subsidy that the Ministry of Housing and Physical Planning pays to make up any deficit.

7.28 Thus, the construction employment is analogous to industrial employment - and any difficulties that are confronted by seasonal unemployment can be obviated by fashioning well-thought out policies which will enable optimal level of employment almost for full work-year. Such a strategy helps in enhancing the levels of income, employment and welfare to a maximum number of people, in the economy, through sustained and progressive growths - with stabilisation in general price-levels and costs of capital formation.

Qualities
Employ-
ment Rules,
Procedures
etc.

7.29 The KAVAL towns survey data analysis has shown that, by and large, in some cases to a maximum of 10-15% of the wage-income of the construction labour is taken by the intermediary - who might be the employer - contractor, jamadar or Mistri. Hence, there is nothing unjustified in the roles now being played by the intermediary. The

'Model Rules' framed by the C.P.W.D. are qualitatively good for the labour welfare, but unfortunately they have been very much operated in their breach. There is no anxious behavioural motivation on the part of all type of functionaries, and construction agencies - and their sub-agents (like and the Departments/Ministries), concerned with construction activity directly or indirectly - to implement the reforms set in motion, because the implementing agency may blunt reforms' sharpness, develop obstructive and inhibiting procedures to generate delays. The abolition of intermediaries, is neither possible nor beneficial, since no organised other institution is in operation or can be put into operation. The attempts made in the U.K. to eliminate intermediaries could not succeed and the 800-year old system is still almost intact, and every operation is still run by Guilds - and the master craftsmen and journeymen rule the show - and system of apprenticeship is as alive as in the hoary past. However, in the USA / ^{through} the Fitzgerald Act of 1937, apprenticeship institution is regularized.

7.30 The lack of interest in trade-unionism as has been examined in Chapter (Table 6.03) and is / labour force - a bane of construction / when less than 7 percent of 703 sample respondents had joined the trade unions; and again, it were the semi-skilled who had shown some interest politically and otherwise - and skilled and unskilled had almost no interest in trade-unions. The nominal interest in trade-unions by construction labour

is no consequence - it neither functions nor commits suicide. In such a helpless situation, the governmental authority should intervene in the labour market to enunciate and formulate policies, rules and procedures - and educate the implementing men and institutions the purpose and objectives of construction labour's amelioration from traditional and non-scientific labour-employer relations. Injecting of the 'know-how' and efficiency to move the labour upwards in the income levels through sharpened productivity will go a long way to improve their lot.

our
peratives

7.31 One of the ways is to instil the ideas of cooperative spirit - and form labour cooperatives - of the construction labour, run by the construction labour, and for the good of the construction labour. There are a number of producer cooperatives, consumer cooperatives, transport cooperatives, housing cooperatives, workers' cooperatives to function as the "contractor - employer + employee labourer + profit-earner" all the three ^{functions} ~~folded~~ into one. Operationally, it would mean that first the labourers will form a society under the Indian Cooperative Societies Act to function as a builder and to take contracts for construction jobs of building houses, schools, hospitals, offices, roads, bridges etc. or as sub-contractors for the specialised work, will allocate wages to those who would work, and on the completion of work(s) in a year, will distribute the profits - as dividends - after making payments of interest, taxes, rents, wages, salaries etc.

Though the cooperative institutions did exist under the purview of the Act, there have been no worthwhile attempts to form labour cooperatives. An effort made by Bharat Sevak Samaj - to build by taking contracts from public sector - seemed to be a success, as it concluded and consummated a number of contracts. But at last this enterprise with social objective came to grief, and it is in the laps of God whether such ventures can make a profitable business to the good of building labour.

7.32 The Contract Labour (Regulation and Abolition) Act of 1970 - and the attendant Rules laid down, are designed to regulate the work conditions and welfare schemes of contract-labour in all industries. It ^{lays down that by} / all the building operations where 20 or more workers work for more than 120 days, in a year, will not be considered 'casual' as also for the seasonal nature of work, the employment time of more than 60 days will not be 'casual'. For any infringement of the provisions of the Act, the sponsoring agency as well as principal employer are equally responsible. However, as explained by data in Table 6.02, the rules were defied ^{that} except/provisions for 'bathing and canteen facilities' are somewhat observed.

7.33 The honouring of Payment of Wages Act and Minimum Wages Act require (i) no deductions' from wages - other than that provided, (ii) wage-period not to exceed a month, (iii) to maintain upto date muster-roll of workers, wages, deductions, advances, overtime-allowances, and (iv) fines are levied; for any penal offence, is punishable with imprisonment upto 3 months and fine of Rs 1000 or both - and contraventions

of the rules persistently invite additional fine of £ 100 per diem for the continuance of the offence.

34 The Contract Labour Act 1970, however, did not include the significant aspects for building labour (such as, housing, safety, maternity facilities). Nonetheless, the Act did not come into operation in building industry and if implemented doubt persists how to successfully apply the provisions of the Act in view of insufficient staff of Labour Office, and frequent turn-overs of building sites, building workers and employing contractors.

7.35 The story about the Workmen's Compensation Act is however little better - but infringing of some obligation is a part of the game. This happens because of intricate procedures, expensive court operations in case of litigation (without legal aid or expense subsidy) - and to enter this labyrinth becomes not inviting - either to the injured labourers or to the Labour Commissioner, who is terrifically burdened with quite many and diverse functions. The building industry because of its unorganised character is ignored by the authorities of Labour Commissioner's Office - and closing eyes to the enforcement of the Laws becomes the built-in culture of the administrative systems and social habit. In short, legislators make the laws, and executives practice to break them - making a highly agonising and vicious phenomenon.

7.36 After certain years' of work, there is a well-argued accept^{ed}/premise that the workers should get some on retirement/or on ceasing to work. lump-sum from the employer/employers/ But because of unorganised, temporary (or day to day new) employment, and variegated building sites, offer botlenecks and different difficulties to graft the old-age pension or for construction labour provident fund/ For industrial labour under 'Employees Social Insurance Scheme', the wage-earner when he leaves the job, he is entitled to get back his deducted wages plus equal amounts of contributions by the employer with interest; and the employee gets a good sum on leaving the for construction labour job. It is difficult to operate such a scheme; but no difficulty is insuperable. Now, of late, these who did not have pensions such as, the legislators, Parliament Members, political sufferers, detenus in Emergency, disaster sufferers etc are, justly given the pension, (why a toiler who silently digs the foundation, carries the bricks, breaks the rocks, mixes the concrete, sand and cement, while all the dust entering his nostrils and gets suffocated and every minute profusely perspires - should not be given old-age and long-work compensation for his security and for few years to his posterity?)

7.37 In view of the above, perhaps it can be done in some way, the labourer may deposit every week or fortnight or month, say 5-10% of his wages in a post-office savings account - and while doing so he should inform the name of the employer/Jamadar/Mistri (and address of the building site to the Post-Office as well as the Account

Number in the Post-Office - obliging automatically to employer to deposit equal amount(s) due from them at 5-10%, as laid down in the Rules. A delay beyond a week/fortnight/month by the employer parties should impose a penalty which could be 10 percent of the amount payable by the said employer-parties. If the building labour is not employed ^{due to sickness for} more than a fortnight, or sick, it might perhaps be possible for the Government (through Labour Commissioner's Office) to deposit a token deposit equivalent to 10 percent of the ^{as was} average wage/during the last months) of his employment. Whenever, at about the age of 45-50 years, when he ceases to function as building labourer, he may be entitled to receive his provident fund while he is in harness or at (or about) the time of his withdrawing from employment, or on his demise, at any ^{time,} his legal successor(s) should be entitled to receive the accumulated fund. In any case after the age of '50' all the building workers be given old-age pension, as it is payable to the Armed Forces' and Police retirees, at an earlier age retirement at '45' or about it. The underlying rationale is similar to Armed Forces and the Policemen are the guardians for the 'security of the country' and the 'law and order' of the community, so also the building and construction labour, every hour of his work, does nothing else but engages himself in 'long-life capital formation' (and he himself spends his working life in slums) - which by itself serves the community for a

'longer=life' in generating essential and community services (of transport, water-supply, electricity, sanitary services, schooling, hospital, entertainment services etc.) not only to one generation but to the posterities. ^{13/}

13/ The above scheme is a frame of some ideas - and detailed scheme for operation can be framed with the help of actuaries, - and in consultation with Public Sector Construction Agencies as also the Private Sector Contractors/Builders, Ministries of Works & Housing, Defence, Railways, Finance, Labour and Employment, Education, Culture & Social Welfare.

S U M M A R Y

Within Census Houses, residential houses were around two-thirds in U.P., and its Urban and Rural Areas; however, urban areas had a lead - followed by about 5-6%, vacant houses, and rest were around 1 percent or less - but 'Others' formed over one-fifth in Rural Areas and U.P. - but urban areas had 8.71% under 'shops-excluding eating houses', 'factories' about 4 percent and 'Others' only one-twentieth.

Essential services are poor in KAVAL towns, and poor maintenance and repairs' operations are degenerating the all types of Census Houses and essential services 'capital stock, thus evidently paupering the environs in KAVAL towns - where 29 percent of the urban population of the 22 towns of '100,000 and over population' - which by themselves envelope 50 percent of the total urban population of U.P.

Kanpur and Lucknow had the highest proportion of residential houses at 81.9 percent and 80 percent of the total 'Census Houses' - followed by Allahabad (75.1%), Agra (71.7%) and Varanasi (63.9%). The role of the public sector, in constructing residential and non-residential and also financing them is generally high in developed countries - and some data of U.K. are presented.

Housing conditions in all the KAVAL towns are in bad shape; Agra leads in the average size of household (6.04), and also highest density per room (3.12); Varanasi leads in own-houses (58.8%) - and Agra (only 55.1%) but Kanpur has only 16.7% own-houses by households; highest proportion of 1-room houses are in Kanpur (59.6%) - followed by Agra (50%).

The cost ratios for each investment of Rs 220 in 'construction' - are Rs 45, for wages, Rs 155, for Building Materials and Rs 20, for overhead charges.

The fixed capital investment forms 85-90% and 10-15% of the savings; and 55-75 percent of the fixed investment goes into construction - but the norm could be about two-thirds or 65%.

National Accounts data for 1970-71 to 1976-77 convey that rate of savings was increasing but that of investment was static or declining from 1974-75 and onwards; resultantly it is surmised that the investment in construction was also in sympathy, declining - and this actually diminished the proportion of 'construction labour' to total working population in the country and so also in KAVAL towns - which caused reactions in the forward and backward link sectors of the country - and

in KAVAL towns causing mounting unemployment. The investments in physical assets both by private and public sectors as well dwindled during the 1970's.

Total population of KAVAL towns is likely to increase from 3.83 million, in 1971 to 7.75 million in 2001, and working population, from 1.46 million to 2.61 million. Therefore, to provide the required new needs of infrastructure and housing, etc. as also to wipe off backlog of shortages - it is projected to raise construction labour from 17,760 in 1971 to 90,000 in 2001 AD - making its ratio to 3.5% of working population from about 1.7% in KAVAL towns and 1.2% in Kanpur. For the augmented labour, training is the 'must'.

Organisational improvements and changes are called for to ward off seasonal unemployment for construction workers - as has been done by cold countries of Europe and America in winter season to stabilise the employment of construction workers.

Modalities of employment, Rules, Procedures etc. need to be scientifically improved upon - by abolishing intermediaries, as far as possible - and by developing education, technical knowledge etc.

Income levels, and cultures of independence, enterprise can be augmented, in some way, by establishing building labour's cooperatives.

Legislative Instruments may also help in improving the lot of construction labour - but the urgency is to improve the implementation and culture of administrative wings of the Government.

Some system of old-age pension, provident fund, etc. to provide security in old age for building/construction labour is essential. Accordingly, some ideas, on this issue, are submitted for Government's consideration.

AM-EX - 7.01 Estimates Man-Years Per Unit Quantity
of Buildings (in Middlesex Development
Plan 1951).

Type of work	Man-Years	
	March 1950	1947
(1) Houses per house of 900 ft. super	1.31	1.31
(2) Single 100 sq.ft.	2.68	3.05
(3) Churches - 500 seats	24.70	28.16
(4) Licenced Premises - 12000 sq.ft. Super.	38.32	43.48
(5) Cinemas - 1000 seats	33.73	38.43
(6) Health Centres - 2000 sq.ft. super	8.53	9.72
(7) Offices - 1000 sq.ft.	2.95	3.36
(8) <u>Schools:</u>		
i) Nursery - 100 pupils	3.11	3.54
ii) Infants (or Primary School) - 200 pupils	21.23	24.20
iii) Junior (or Middle School) - 320 pupils.	33.96	38.71
iv) Secondary Schools - 470 pupils	68.57	78.17
v) Secondary Special Schools, - 200 pupils.	31.75	36.20
vi) Country (or Intermediate) College.	76.67	87.40
(9) Hospitals - per 500 beds.	632.46	721.00
(10) <u>Roads and Services:</u>		
a) water-supply and sewerage per £1000 investment or £35 per head of population in new towns and £25 per head of population in other towns.	1.38(1947)	
b) Road, sewers and gas and electricity services to houses.	1.60(1947)	
(11) <u>Main Roads</u>		
a) Expanded towns 30.45 per head of population per £1000 invest- ment.	1.72(1947)	

Note:- Estimates of man-years in 1947 were higher broadly by 10-20 percent on different type of works due to improvement in productivity of the labour. This accepts that in the latter years the productivity would have further accelerated - but along with wage-levels.

Source: Report of Survey of Middlesex Development Plan - 1951
Table - 52.

VIII. MAJOR CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

- (1) Construction/Building industry is closely related to economic life and is also associated with the behaviour of business cycles. Any element of instability in construction has far reaching effects on other industries - subservient to construction, since 'one hour' of employment on construction provides additional employment of 'two-and-half hours and more' in construction materials and equipment industry.
- (2) The construction industry outputs are variegated in types, and are generated by small and large-sized construction agencies - with close backward and forward 'multiplier' and 'accelerator' operative phenomena, which can be volatile; labour in this industry is highly unorganised - though in few cases, it may also get organised.
- (3) Though fixed capital input in this industry is sizeably large, the working capital needed is quite small, as compared to manufacturing industry; and 'tradition' largely rules the operational culture.
- (4) Sales of construction industry's outputs are few and far-and mostly these are saleable on credit-basis (or mortgage basis).
- (5) The costs of buildings plus the periphery adjuncts of essential and community services make the sizeable fixed capital investment, which is highly intriguing - and these elements push up the prices of urban land; any change in already-put structure is not prone to succeed without quite many headaches.

(6) In any time-span 80-90 percent of the buildings and other construction are old-one and new ones are only 5 or 10 years' old.

Chapter-I

(7) The volume of construction labour, in U.P., and its larger towns - during the last 25 years has been falling at an accelerated rate, making construction activity static and sagging. The decline in construction labour force between 1961-71 was 35.2 percent in KAVAI towns (of which 50% was in Lucknow; 44 %, in Allahabad; and 43%, in Kanpur.

(8) The aforesaid over-all depressed conditions, have sprung due to lack of integrated over-all development planning. This situation has incidently become parallel to what happened in U.S. economy during the decade of 1960-70.

Chapter -II

(9) Construction activity of 'residential and non-residential' constitutes a major part of total construction activity; therefore, sample frame is more linked largely to the building sites - making a total sample of 703 sites, for interviewing 703 labourers. - The sample size formed 4% of 17,760 construction labour of the KAVAI towns, in 1971.

(10) In the 'sample', public sector construction agencies' held 75% of the interviewed labour and private sector construction agencies 25%, the former were more prominent in the four towns - and latter, in Kanpur.

(11) Residential sites, in the sample, formed 55% and rest were non-residential sites in order of their proportions - educational, medical, commercial and industrial, clubs/ hotels, entertainment, etc.

(12) Construction workers origin is either 'casual' or 'hereditary' - and they are consisted of skilled, semi-skilled, and unskilled - as masons, carpenters, blacksmiths, painters, electricians, scaffolders, glaziers, helpers, etc.

(13) Construction labour is open (1) to frequent changes geographically in regard to construction sites, (2) lack of continuity - except for key labour, (3) change in employers who shift to execute work at different places, (4) wide differentials in skills. These elements make him weak in bargains with the employer.

(14) Migration of labour into KAVAI towns was sizeable, in early stages of the growth of the towns, but after a few decades, it offered opportunity to the 'sons of the corresponding districts'.

(15) It is not true that 'educated labour' is necessarily ^{that} a skilled worker and/'unskilled'^{is},/an illiterate.

(16) 84 percent of construction labour was in the age range of '18-49 years' - and 96 percent in '18-49 years and above'.

(17) Jamadar/Mistri is the main plank of supplying jobs to about 57% construction labour - followed by 'friends' - who helped about 27 percent. And about 35% of the labour had been in the employment of one employer for '1-5 years' - mostly by public sector construction agencies.

(18) Result-oriented training system is conspicuous by its absence - it is an irony that those - trained for manufacturing industry, spill-over to construction sector - and two-thirds amongst the unskilled, and one-third amongst

semi-skilled had^{not} gone through any formal training.

Chapter-V

(20) Welfare of the workers and family rests on income, expenditure and its distribution, savings, work-volume, wage rates, education, productivity, subsidiary income in the form of over-time and other allowances.

(21) 93 percent of the construction workers had employment for 21-31 days in the month; and 83% of them earned between Rs 5-12 a day. All the same, absenteeism plagued 25% of workers due to sickness and/or other work, ceremonies, etc.

(22) Construction workers had 57% amongst them, were rural migrants. Of the latter, 40% (157 only) visited their native places; 51.6% of 157, engaged, in agricultural pursuits; 31.2%, in non-agricultural work; and 17.2%, did not work.

(23) Nearly 53.6% of the sample labour earned per month 'Rs 201-400'; and 11% earned 'Rs 400 and more'. However, in lower income levels, 20% of the workers, earned Rs 101-150; and 11%, earned Rs 151-200. In the mode-income group of Rs 201-400, the workers saved nominally, though the savers number was large.

(24) 43.79% of the expenses were on 'food' of the sample workers. If 'food' is clubbed with expenses on 'liquor' and 'remittances-for-sustenance', the 'food-expenditure' proportion would rise to 53%.

Chapter-VI

(25) At public sector construction agencies' building sites the labour force was large - varying from 11-20 to 21-50 and to 50 and more; and in private sector construction sites, labour was small-sized.

(26) The working conditions and facilities were minimal yet the provisions of Model Rules of CPWD could not be honoured except, to a certain extent, for 'bathing' and 'canteen' facilities.

(27) Trade-union association of the construction labour was very slender; only 48 labourers out of 703 sample respondents were the members of trade union - and of them semi-skilled showed some interest in political consciousness, voting etc and others were dormant.

(28) Better residential housing facilities, as a part of "living conditions" and water-supply demonstrate improved conditions with more of them having pucca houses - in contrast with hopeless housing facilities at work sites (for the labour and family).

(29) Residential 'census houses' are generally two-thirds of total 'census houses', in U.P.; however, in KAVAL towns the proportions of residential houses, range between 'three-fourths to four-fifths' - which establishes that proportions of residences in larger towns are also larger.

(30) Housing conditions in all the KAVAL towns are in bad shape in regard to overcrowding and congestion; and own-houses form a proportion range between 50-60 percent - except in Kanpur where the proportion is as low as 16.7%.

(31) Cost ratios for each investment of Rs 220 in construction are Rs 45, for wages; Rs 155, for building materials; and Rs 20, for overhead charges.

(32) Investment ratios in the economy - both in public and private sectors were sagging from 1974-75 and onwards

in relation to increase in savings ratios; construction sector also behaved in the similar way - intensifying the waves of unemployment not only in construction but in all other sectors of the economy - but agonisingly in KAYAL towns - with backward and forward linkages.

B. RECOMMENDATIONS

- (i) In developing countries, because of low-income levels of the households, State should take initiative in giving financial aid (loans and/or subsidies) - which in developed countries ranges from 65-97 percent; and in India it is only 20-25 %.
- (ii) In developing countries (and in India), the construction activity is low and still lower is the residential building activity (at about 1-2 units per thousand of persons, a year), as against 5 or above units in developed countries - being 10, in Newzealand, - 13, in Hongkong - and 14, in U.S.S.R.; therefore, developing countries, must augment construction and building activity - along with providing all essential and community services.
- (iii) The citys' physical development planning should not be in isolation, but should be integrated with wider social and economic planning.
- (iv) The steps should be taken to make operations of the ITI's and Apprentice Act, result-oriented, in order to raise 'utility function' of ITI's and importance of Apprentice Act. Both require the will and efficiency in the implementing machinery's stream-lining.

(v) The proportion of construction labour to total work-force in KAVAL towns be raised to 3.5 percent from the incessantly declining trend of the proportion since 1951 - to low levels of 1.2 to 1.7 percent in all the towns - except Agra.

(vi) Organisational improvements, and changes be brought out with a view to (a) ward off seasonal unemployment in construction sector; (b) to implement modalities of employment, rules and procedures - when determined by the Government, labour and employing agencies; (c) to augment the income-levels, and culture of independence and enterprise; (d) to provide old-age pension, provident fund etc. to building labour also; and (e) to streamline the administrative culture of implementing the provisions of legislations relating to Labour Welfare. (vii) All the above steps are called for to create working conditions of the construction labour which is projected to grow from 13,760 workers, in 1971, to over 90,000, in 2001 AD, in KAVAL towns.

Appendix - (a): Differential Characteristic of
Public and Private Sector Construction
Agencies.

Ordinarily the construction agencies, which undertake the construction work, can be grouped into two classes: (1) Public Sector; and (2) Private Sector. In the present study, C.P.W.D., M.E.S., Railways, UP State P.W.D., Municipal Corporations and Development Authorities of Kanpur, Agra, Varanasi, Allahabad and Lucknow belong to public sector; and all private contractors (individuals or joint stock companies) and builders come under the ambit of private sector.

Significant points of differences, distinguish one from the other. Public agencies, (a) are not bound strictly under law to limit their operations - they often have special statutory and other privileges - though invariably they are responsible to the Government (whether authoritative or democratic); (2) They are not limited to the elements of financial accounting - though they have to be accountable - and statutory duty, cast on them obliges to carry out the functions of construction in the interest of public good and policy; (3) They carry out building function for their own department/office occupation - though they may have to build for private uses also; (4) Public agencies need not always build for profit or engage in remunerative projects - because public good is the main ethos of their activity; (5) These agencies may quite often be responsible to an identified development project in an area and will invariably take into consideration in relation to its present and future anticipated construction activities; and (6) Public agencies, more often than not borrow or receive grants and subventions from public consolidated funds - as decided by policy makers. Whereas, a private agencies have some limitations, such as (1) they have to be regulated by law of Central, State and local laws, Bye-laws; (2) to them financial gain is the main motive to undertake the work - and no work would induce them unless the return is not insufficient; (3) they engage in work which is their own or of the public sector or any corporate sector company; (4) each one of them will look forward to cover his cost of construction, without exception - out of the payment to be payable to him by the users of the accommodation or its services; (5) they will usually undertake work of one of many similar agencies - operating in the same area of operation; and (6) they have to very often borrow or mortgage from individuals or financial institutes.

Appendix - (b): Model Rules to be followed for the
Protection of Health and Sanitary
Arrangements for Workers Employed
(By Central P.W.D. or its Contractors).

1. APPLICATION

These rules shall apply to all building and construction workers in charge of Central Public Works Department.

2. DEFINITIONS

(a) "Work place" means a place at which, at an average, 500 or more workers are employed in connection with construction work.

(b) "Large work place" means a place at which, at an average, 500 or more workers are employed in connection with construction work.

3. FIRST AID

(a) At every work place, there shall be maintained in a readily accessible place first aid appliances including an adequate supply of sterilized dressings and sterilized cotton wool. The appliances shall be kept in good order and, in large work places, they shall be placed under the charge of a responsible person who shall be readily available during working hours.

(b) At large work places, where hospital facilities are not available within easy distance of the works, First Aid posts shall be established and be run by a trained compounder.

(c) Where large work places are remote from regular hospitals, an indoor ward shall be provided with one bed for every 250 employees.

(d) Where large work places are situated in cities, towns or in their suburbs and no beds are considered necessary owing to the proximity of city or town hospitals, suitable transport shall be provided to facilitate removal of urgent cases to the hospitals. At other work places, some conveyance facilities, such as a car, shall be kept readily available to take injured person or persons suddenly taken seriously ill to the nearest hospital.

4. DRINKING WATER

(a) In every work place, there shall be provided and maintained at suitable places, easily accessible to labour, a sufficient supply of cold water fit for drinking.

(b) Where drinking water is obtained from an intermittent public water supply, each work place shall be provided with storage where such drinking water shall be stored.

(c) Every water supply or storage shall be at a distance of not less than 50 feet from any latrine, drain or other source of pollution. Where water has to be drawn from an existing well which is within such proximity of latrines, drains or any other source of pollution, the well shall be properly chlorinated before water is drawn from it for drinking. All such wells shall be entirely closed in and be provided with a trap-door which shall be dust and water-proof.

(d) A reliable pump shall be fitted to each covered well, the trap-door shall be kept locked and opened only for cleaning or inspection which shall be done at least once a month.

5. WASHING AND BATHING PLACES

(a) Adequate washing and bathing places shall be provided, separately for men and women.

(b) Such places shall be kept in clean and drained condition.

6. SCALE OF ACCOMMODATION IN LATRINES & URINALS:

There shall be provided, within the precincts of every work place, latrines and urinals in an accessible place, and the accommodation, separately for each of them shall not be less than the following scale:

- | | | |
|-----|---|-----------|
| (a) | Where the number of persons does not exceed 50 | 2 seats |
| (b) | Where the number of persons exceeds 50, but does not exceed 100 | 3 seats |
| (c) | For every additional 100 persons | 3 per 100 |
- In particular cases, the Executive Engineer shall have the powers to vary the scale, where necessary.

7. LATRINES AND URINALS FOR WOMEN

If women are employed, separate latrines and urinals, screened from those for men and marked in the vernacular in conspicuous letters "For Women Only", shall be provided on the scale laid in Rule 6. Those for men shall be similarly marked "For Men Only". A poster showing the figure of a man and a woman shall also be exhibited at the entrance of latrines for each sex. There shall be adequate supply of water close to the urinals and latrines.

8. LATRINE AND JAINALS

Except in work places provided with water-flushed latrines, connected with a water-borne sewage system, all latrines shall be provided with receptacles on dry-earth system which shall be cleaned at least four times daily and at least twice during working hours and kept in a strictly sanitary condition. The receptacles shall be tarred inside and outside at least once a year.

9. CONSTRUCTION OF LATRINES

The inside walls shall be constructed of masonry or some suitable heat-resisting non-absorbent material and shall be cement-washed inside and outside at least once a year. The dates of cement washing shall be noted in a register maintained for this purpose and kept available for inspection. Latrines will not be of a standard lower than bore-hole system and should have thatched roofs.

10. DISPOSAL OF EXCRETA

Unless otherwise arranged for by the local sanitary authority arrangements for proper disposal of excreta by incineration at the work place shall be made by means of a suitable incinerator approved by the Assistant Director of Public Health or the Municipal Medical Officer of Health as the case may be, in whose jurisdiction the work place is situated. Alternatively excreta may be disposed of by putting a layer of nightsoil at the bottom of a pucca tank prepared for the purpose and covering it with a 6" layer of waste or refuse and then covering it up with a layer of earth for a fortnight (when it will turn into manure).

11. PROVISION OF SHELTERS DURING REST

At every work place there shall be provided, free of cost, two suitable sheds one for meals and the other for rest respectively for men and women for the use of labour. The height of the shelter shall not be less than 11 feet from the floor-level to the lowest part of the roof. The shed should be roofed with at least thatch and mud flooring will be provided with a dwarf wall around not less than $2\frac{1}{2}$ feet. Sheds should be kept clean and the space should be on the basis of at least 5 square feet per head.

12. CRECHES

(a) At every work place, at which 50 or more women workers are ordinarily employed, there shall be provided two huts for the use of children under the age of 6 years, belonging to such women. One hut shall be used for infants' games and play and the other as their bedroom. The huts shall not be constructed on a lower standard than the following:

- (i) thatched roofs;
- (ii) mud floors and walls;
- (iii) planks spread over the mud floor and covered with matting.

The huts shall be provided with suitable and sufficient openings for light and ventilation. There shall be adequate provision of sweepers to keep the places clean. There shall be two Dais in attendance. Sanitary utensils shall be provided to the satisfaction of the Health Officer of the area concerned. The use of the hut shall be restricted to children, their attendants and mothers of the children.

(b) Where the number of women workers is more than 25 but less than 50, the contractor shall provide at least one hut and one Dai to look after the children of women workers.

(c) The size of creche or creches shall vary according to the number of women working.

(d) The creche or creches shall be properly maintained and necessary equipment like toys, etc. shall be provided.

13. CANTEEN

A cooked food canteen on a moderate scale shall be provided for the benefit of workers wherever it is considered expedient.

14. The above rules shall be incorporated in the contracts and in notices inviting tenders and shall form an integral part of the contracts.

Note:- Under Clauses 19-F and 19-H of the Contract, there are other provisions for working and living conditions in regard to (i) leave, (ii) pay, (iii) houses/huts, (iv) water-supply, (v) disposal of excreta, (vi) drainage, and (vii) sanitation.

Appendix - (c): Elasticities of Employment with respect
to Income, Labour Force and Population
(Forty Four Developing Countries).

Sector	Income	Labour	Population		R.	F.
	b	Force	d*	d		
	(1)	(2)	(3)	(4)	(5)	(6)
Agriculture	-0.496 (0.081)	1.281 (0.230)	0.990 (0.033)	0.205 (0.246)	.970	449
Mining	0.811 (0.301)	-	0.982 (0.124)	0.171 (0.325)	.605	31
Manufactur- ing	0.561 (0.120)	-	1.133 (0.050)	0.572 (0.130)	.925	263
Construction	0.862 (0.112)	-	0.978 (0.046)	0.116 (0.121)	.914	225
Utilities	0.805 (0.185)	-	0.954 (0.077)	0.149 (0.200)	.787	78
Commerce	0.558 (0.087)	0.518 (0.246)	1.048 (0.036)	0.028 (0.263)	.956	315
Transport	0.608 (0.106)	-	1.078 (0.044)	0.470 (0.115)	.935	305
Services	0.544 (0.096)	0.656 (0.272)	1.074 (0.040)	1.186 (0.291)	.947	251

Source: Richard Blandy - "Population and Employment Growth: An Introductory Empirical Exploration" (International Labour Review, Vol.106, No.4, October 1972, page 350).

Appendix - (d): Elasticities of Output (Value-Added) and Productivity Sector-wise with respect to Income, Labour Force and Population in 29 Developing Countries.

Sector	Income (output elasticity)	Labour force (output elasticity)	Population		R ²	F
			(Output elasticity)	Producti- vity elasticity		
	1	2	3	4	5	6
Agriculture	0.271 (0.078)	-	0.690 (0.084)	0.485 (0.260)	.972	483
Mining	2.026	-	-0.703 (0.562)	-0.874 (0.649)	.599	19
Manufacturi- -ng	1.352 (0.109)	-	-0.240 (0.118)	-0.812 (0.176)	.958	297
Construction	0.984	-	-0.119 (0.147)	-0.235 (0.190)	.893	114
Utilities	1.503 (0.150)	-	-0.578 (0.163)	-0.727 (0.258)	.899	116
Commerce	1.139 (0.093)	-	-0.145 (0.101)	-0.117 (0.282)	.960	326
Transport	1.127 (0.106)	-	-0.187 (0.115)	-0.657 (0.163)	.945	224
Services	1.183	-	-0.241	-	.976	534

Source: Richard Blandy - "Population, and Employment Growth: An Introductory Empirical Exploration". (International Labour Review, Vol.106, No.4, October 1972, page 355).

Appendix - (e): Some Pertinent Statistics and Ratios in
the Construction Sector:

	<u>1961</u>	<u>1971</u>	<u>1975</u>
A. Total construction workers (millions).	2.1	2.3	
B. Percentage to total workers	1.1	1.2	
C. Construction workers in urban areas percentage of total workers.	46.9	50.5	
D. Employment generated for every investment of Rs 1 crore in building construction.			
I. Direct Employment:			
a) Skilled & semi-skilled	2500	1260	875
b) Supervisory-technical	90	60	40
c) Supervisory - non-technical	105	70	45
II. Indirect Employment in Building materials.	4000	2000	1400
III. Ratio of skilled to unskilled workers.			
a) Construction sector	1: 3.7	1:3.7	
b) Building Sector	1: 2.2	1: 2.2	
c) Proportions of persons employed in building construction to construction.	49	60 percent	

Appendix - (f) : List of the Persons/Organisations visited by the Field Supervisors in Kanpur, Agra, Varanasi, Allahabad and Lucknow.

KANPUR

1. Mr. H.S.Sharma, Labour Commissioner, U.P.
2. Mr. Narendra Singh Verma, Deputy Labour Commissioner, U.P.
3. Mr. A.P.Trivedi, Asstt. Labour Commissioner, U.P.
4. Mr. R.K.Singh, Deputy Registrar of Trade Unions (responsible for supervision of trade union activities in stone breaking and stone crushing under the Minimum Wages Act.)
5. Apprenticeship Adviser to the Govt. of India (for placing engineers in job only).

Kanpur Development Authority:

1. Mr. Yudhistir Raheja, Chief Engineer, K.D.A.
2. Mr. Mahendra Singh, Asstt. Engineer, K.D.A.

AGRA

1. Mr. K.S.Sahni, Superintending Engineer, State PWD, 2nd Circle.

VARANASI

1. Mr. A.K. Srivastava, Supdt. Engineer, State PWD 34th Circle.
2. Mr. Rameshwar Prasad Mittal, Suptd. Engineer, 20th Circle, C.P.W.D.
3. Mr. S.K.Gaur, Executive Engineer, State PWD. (STATE P.W.D. has justed departmental construction in Varanasi and wants to eliminate the contractor system).
4. Mr. S.K.Srivastava, Asstt. Engineer, Varanasi Development Authority.
5. Mr. S.H.Siddiqi, Executive Engineer, Varanasi Development Authority.

ALLAHABAD

1. Mr. Ram Chand Sharma, Superintending Engineer, State PWD 5th Circle.
2. Mr. A.K.Banerjee, Chief Engineer, Allahabad Development Authority.
3. Mr. Ajay Chand Majumdar, Secretary, Allahabad Development Authority.
4. Mr. Hirday Narayan Agarwal, I.A.S., Administrator, Allahabad Development Authority.

Appendix (f) continued.LUCKNOW

1. Mr. Jagdish Misra, formerly Executive Engineer, State PWD now Principal, Girl's Polytechnic.
2. Mr. R.N.Misra, Executive Engineer, State PWD.
3. Mr. C.N.Trivedi, Electrical Engineer, State PWD.
4. Mr. Satya Prakash, Superintending Engineer, 10th Circle.
5. Mr. S.K.Gupta, P.A. to Chief Engineer (Buildings) State P.W.D.
6. Mr. P.K. Vasudev, Executive Engineer (Building Design), State P.W.D.
7. Mr. S.K.Misra, Electrical Engineer (Building Design).

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A SURVEY OF EMPLOYMENT IN BUILDING CONSTRUCTION

WORKER'S SCHEDULE

Town : Kanpur / Agra / Banaras / Allahabad / Lucknow

I. Identification Particulars :

1.0. Name of the Construction agency.

1. CPWD / 2. PWD / 3. Municipal Corporation /
4. Development Authority / 5. Railways / 6. Military Engineering Services / 7. Post and Telegraphs / 8. Private.

1.1. Type of building construction.

1. Residential-Public Sector /
2. Residential-Private Sector /
3. Non-residential Office /
4. „ „ Education Buildings /
5. „ „ Hospital / Dispensary /
6. „ „ Clubs / Hotels / Restaurants /
7. „ „ Entertainment /
8. „ „ Commercial / Industrial /
9. „ „ Miscellaneous.

1.2. Average work force at the site.

1. 1-10 / 2. 11-20 / 3. 21-50 / 4. More than 50

1.3. Name of the respondent worker.

1.4. Type of worker.

Skilled worker—1. Mason / 2. Carpenter / 3. Plumber / 4. Electrician / 5. Painter / 6. Blacksmith /
7. Surveyor / 8. Engineer / Overseer / 9. Others.

Semi-skilled worker—10. Bhisti (Water sprayer) /
11. Glazier / 12. Bandhani (Scaffolder) /
13. Others getting trained in skilled occupation.

Unskilled worker—14. Helper / Beldar / 15. Others.

1.5. Is the present job, hereditary ?

1. Yes / 2. No

1.6. Did you drift into it casually when there was nothing else ?

1. Yes / 2. No

- 1.7. Sex 1. Male / 2. Female
- 1.8. Marital Status 1. Married / 2. Unmarried / 3. Others.
- 1.9. Native Place 1. Urban / 2. Rural / 3. Local / 4. Other district of UP / 5. State other than U.P. (State)
- 1.10. Age 1. Less than 18 years / 2. 18—34 years / 3. 35—49 year / 4. More than 49 years.
- 1.11. Education 1. Matriculate and above / 2. Literate (can read and write) / 3. Illiterate.

II. Migration Particulars :

- 2.0. Reason for coming to the town 1. Insufficient income from land / 2. No work in the village / 3. Family quarrels / unhappiness / 4. Oppression of zamindars / relations or others / 5. Better prospects in the city / 6. Had friends / relations to get a job / 7. others / 8. Not applicable.
- 2.1. Duration of stay in the town 1. Less than a year / 2. 1-5 years / 3. More than 5 years.
- 2.2. Dependents living with the worker 1. Wife / Husband / 2. Own children / 3. Parent(s) / 4. Others / 5. Nil.
- 2.3. Number of dependents living with the worker 1. One / 2. Two / 3. 3-4 persons / 4. More than four persons / 5. Nil.
- 2.4. Dependents not living with the worker 1. One / 2. Two / 3. 3-4-persons / 4. More than 4. persons / 5. Nil.
- 2.5. Would you prefer to live and work in a small town ? 1. Yes / 2. No
- If yes, why ? 1. Nearness of your village home / 2. With your own people / 3. Homely atmosphere / 4. Others / 5. Not applicable.
- 2.6. What are your aspirations for your children ? 1. Follow your occupation / 2. Give education and make a skilled worker / 3. Give education and make an office worker / 4. Others / 5. Not applicable.

2.7. Do you like your daughter to be educated ?

1. Yes / 2. No / 3. Not applicable.

If yes, upto what age ?

1. 10 years / 2. 16 years / 3. 22 years / 4. Above 22 years / 5. Not applicable.

2.8. Do you like your daughter to be married ?

1. Early / 2. Late / 3. As soon as a good match is available / 4. Not applicable.

III. Recruitment and Training :

3.0. Source of information of the present job.

1. Relation / 2. Friend / 3. Jamadar/Mistri / 4. Contractor / 5. None / 6. Employment Exchange.

3.1. Period of waiting for the present job.

1. Came after getting the job / 2. Upto one week / 3. 1-4 weeks / 4. More than 5 weeks / 5. Not applicable.

3.2. Past training and experience.

1. Trained in building industry / 2. Trained in other industry / 3. No training.

3.3. Duration of service with the present employer.

1. Less than 3 months / 2. 4-6 months / 3. 7-12 months / 4. 1-5 years / 5. More than 5 years.

3.4. Your expectation of a job after the present job is over.

1. Similar job with the same employer /
2. Better job with the same employer /
3. Similar job with other employer /
4. Better job with other employer /
5. Any job in any other industry /
6. No response.

3.5. Do you like to be trained for future progress ?

1. Masonry / 2. Carpentry / 3. Sanitary fitting /
4. Electrician / 5. Mechanic / 6. Painting /
7. Blacksmith / 8. Plumbing / 9. Surveying /
10. Not interested.

3.6. What time can you afford for training ?

1. One month / 2. Two months / 3. Three months /
4. More than 6 months / 5. Not applicable.

3.7. Availability of Training facilities.

1. On the site / 2. With the Contractor / 3. Under Government auspices / 4. Under private auspices /
5. Do not know.

3.8. Given a choice, what occupation would you like ?

1. Manual occupation (state.....)
2. White collar Job / 3. Blue collar Job.

IV. Incomes and Expenditure :

- 4.0. Number of days worked last month. 1. 1-10 / 2. 11-20 / 3. 21-25 / 4. 26-31.
- 4.1. Number of paid holidays enjoyed last month. 1. 1-4. 2. More than 4 / 3. Nil.
- 4.2. Daily wages rates 1. Less than Rs. 4 / 2. Rs. 5-7 / 3. Rs. 8-12 / 4. More than Rs. 12.
- 4.3. How many hours you worked overtime last month ? 1. 1-10 / 2. 11-20 / 3. 21-30 / 4. More than 30 / 5. Nil.
- 4.4. What is the rate per hour for overtime work ? 1. Less than Rs. 1 / 2. Rs. 1-3 / 3. Rs. 4-6 / 4. More than Rs. 6 / 5. Not applicable.
- 4.5. Did you loose income last month on account of 1. Sickness / 2. Absence of work / 3. Ceremonies at home / 4. Agricultural occupations / 5. Others / 6. Nil.
- 4.6. What is the periodicity of payment ? 1. Daily / 2. Weekly / 3. Fortnightly / 4. Monthly / 5. Others.
- 4.7. Agency/medium through which you get the payment. 1. Contractor / 2. Jamadar / Mukaddam / 3. Owner of the house.
- 4.8. While receiving payment do you pay a percentage of your income ? 1. Upto 10% / 2. 11-20% / 3. More than 20% / 4. Not applicable.
- 4.9. What are the average hours of daily work ? 1. 8 hours / 2. Less than 8 hours / 3. More than 8 hours.
- 4.10. Period of rest during the working hours. 1. One hour / 2. Less than one hour / 3. More than one hour.
- 4.11. Is your wife working ? 1. In the same place / 2. In another place / 3. Not relevant.
- 4.12. How does your wife come for work and go back ? 1. With you / 2. Independently / 3. Not relevant.
- 4.13. When wife goes for work, who looks after the children ? 1. Children accompany the mother / 2. Relations / Friends look after them at home / 3. Not applicable.
- 4.14. Is any of your children working ? 1. Yes / 2. No. / 3. Not relevant.
- 4.15. If yes, where ? 1. Same place as yours / 2. in a different place / 3. Not relevant.

- 4.16. What are the ages of your working children ?
1. Below 14 yrs. / 2. 14-18 yrs. / 3. 19-35 yrs. / 4. 36-50 yrs. / 5. More than 50 yrs. / 6. Not relevant.
- 4.17. Are you engaged in occupation, when you go to your native place ?
1. Agriculture / 2. Non-agriculture / 3. Not engaged.
- 4.18. How much time do you spend in your native place in a year ?
1. Less than a month / 2. 1-3 months / 3. More than 3 months / 4. Nil / 5. Not applicable.
- 4.19. What facilities will help to keep you / your family happy and cheerful ? (One main)
1. Higher wages / 2. Own residence / 3. Cheap ration / 4. Medical facilities / 5. Job security / 6. Others.
- 4.20. Your monthly income (last month).
1. Less than Rs. 100 / 2. Rs. 101-150 / 3. Rs. 151-200 / 4. Rs. 201-400 / 5. More than Rs. 400.
- 4.21. Your household income (last month).
1. Less than Rs. 100 / 2 Rs. 101-150 / 3. Rs. 151-200 / 4. Rs. 201-400 / 5. More than Rs. 400.
- 4.22. Details of monthly household expenditure (last month).

Items	Expenditure (Rs.)
1. Food	
2. Fuel-light	
3. Clothing	
4. Housing	
5. Education	
6. Liquor	
7. Health and medicine	
8. Amusement	
9. Conveyance	
10. Remittance	
11. Others	
Total	

V. Saving and Indebtedness :

- 5.0. Amount saved last month. 1. Nil / 2. Upto Rs. 10 / 3. Rs. 11-20 / 4. Rs. 21-50 / 5. Rs. 50-100 / 6. Above Rs. 100.
- 5.1. Debt incurred last month 1. Nil / 2. Upto Rs. 10 / 3. 11-20 / 4. Rs. 21-50 / 5. Rs. 51-100 / 6. Above Rs. 100.
- 5.2. Your total savings 1. Less than Rs. 100 / 2. Rs. 101-500 / 3. Rs. 501-1000 / 4. More than Rs. 1000 / 5. No saving.
- 5.3. Your total debt. 1. Less than Rs. 100 / 2. Rs. 101-500 / 3. Rs. 501-1000. More than Rs. 1000/5. No debt.
- 5.4. Reason for indebtedness (Main reason) 1. Sustenance / 2. Illness / 3. Death in the family / 4. Marriage / Ceremony / 5. Litigation / 6. Purchase of properties / 7. Remittance to dependents.

VI. Working Condition and Amenitise :

- 6.0. Are the following amenities available at the work-site ? 1. Free house / 2. Canteen/tea shop. / 3. Nursing facilities for children / 4. Bathing facility / 5. Latrine / 6. Medical facility.
- 6.1. Type of construction material of floor, wall and roof of your residence. 1. Pucca / 2. Kutcha floor 3. Pucca / 4. Kutcha wall 5. Pucca / 6. Kutcha roof
- 6.2. Do you have potable water supply from 1. Tap / 2. Tubewell / 3. Well
- 6.3. What is the distance of your residence from the work site. ? 1. Less than 1 Km. / 2. 1-3 Km. / 3. More than 3 Km.
- 6.4. How do you come for work ? 1. On foot / 2. Bicycle / 3. Cycle rickshaw / 4. Bus / 5. Others.

VII. Job Satisfaction :

- 7.0. Your relation with 1. Employer 1. Good / 2. Bad / 3. Indifferent
2. Jamadar 4. Good / 5. Bad / 6. Indifferent
3. Mistri 7. Good / 8. Bad / 9. Indifferent
- 7.1. Do you have job satisfaction ? 1. Satisfactory / 2. Not satisfactory / 3. Indifferent

VIII. Trade Union and Political Consciousness

- 8.0. Are you a member of a trade union ? 1. Yes / 2. No
- 8.1. Why do you like joining the trade union ? 1. Wage increase / 2. Redress of grievances / 3. Workers' unity & solidarity / 4. On friends persuasion / 5. Others / 6. Not relevant.
- 8.2. What is the reason for not joining the trade union ? 1. No faith in union leaders
2. No knowledge of any union
3. No need to join
4. Temporary job and shifting
5. No body asked me to join
6. Not relevant
- 8.3. How do you like labour-management disputes settled ? 1. By strike / 2. By negotiation / 3. By voluntary arbitration / 4. Other methods / 5. No response
- 8.4. Do you belong to a political party ? if yes, give the name 1. Not related to any political party / 2. Congress / 3. Janta / 4. CPI / 5. CPI(M) / 6. Others.
- 8.5. Did you vote in the last election ? 1. Yes / 2. No.

Signature of interviewer Investigator.

Date :